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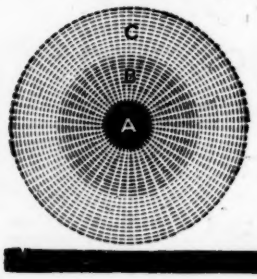

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British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, BRADFORD, 1924.

SECTION OF MEDICINE.

W. LANGDON BROWN, M.D., F.R.C.P., Vice-President, in the Chair.

DISCUSSION ON CARDIAC IRREGULARITIES; ESPECIALLY IN REFERENCE TO PROGNOSIS AND TREATMENT.

OPENING PAPERS.

I.—T. WARDROP GRIFFITH, C.M.G., M.D., F.R.C.P.,

Professor of Medicine, University of Leeds; Physician, Leeds General Infirmary.

I HAVE been asked to open a discussion on irregularities of cardiac action, with special reference to prognosis and treatment. At the outset I may say that, while I have no quarrel with the title of the discussion, we shall find that in many cases we are more concerned with the underlying or associated conditions than with the actual irregularity. I must try to respect the limitations imposed upon me by the title, and certainly the width of the subject ought to satisfy the aspirations of anyone. It will, however, be necessary for me to state briefly the outstanding facts as to our present knowledge of the irregularities of cardiac action.

There is nothing more instructive than to turn to the writings of the older observers and read them in the light of our present knowledge. If we do this we shall rise from the task with a feeling of deep admiration for the accuracy of their observation. To them we owe the classification of cardiac irregularities into those of time and force, and the statement that these are often combined. To that special form of irregularity of the pulse in which one beat in an otherwise regular series is missed out the term "intermission" was applied. It was clearly grasped that in some cases this was the expression of a true intermission of cardiac action and that in others a weak beat had failed to reach the wrist. In this connexion Balfour quotes with critical approval the remarks of Hope, who had commented on the mistakes made by the "non-auscultators." We shall, however, come to the conclusion that even Balfour was too ready to accept as a true intermission that which we now regard as due to a premature systole.

I like to think that the old writers, in contrasting irregularity with intermission, were expressing the difference between that complete arrhythmia which we now know to be the hall-mark of auricular fibrillation and that dropping of a pulse wave which is usually the expression of an extra-systole. When they said that irregularity was a more serious matter than intermittence we shall agree with them—with this reservation, that the intermittence we have in our mind is that due to a premature systole and not that due to a partial heart-block.

It would not be possible to exaggerate the importance of the work of Sir James Mackenzie on the venous pulse, which has done so much to elucidate many of the varieties of irregularity; nor is it possible for anyone who has tried, as I have admiringly, to follow the work of others, to study the writings of Sir Thomas Lewis on the electrocardiograph without feeling that in his experimental work and in his clinical observation alike he has immensely raised the prestige of British scientific medicine.

I shall assume that we are in agreement in believing that the sino-auricular node is the normal site for the starting of each cycle of cardiac contraction, because it is here that the stimulus material reaches the flash-point soonest, and that the excitation and the contraction waves pass very rapidly over the auricles, slowly through the node of Tawara, and then so rapidly by the Purkinje network that they reach all parts of the ventricular musculature at periods which differ only by minute fractions of a second.

The accompanying table, for which I claim neither completeness nor orginality, shows the chief forms of irregularity. I make no more than a passing reference to those which depend upon variations in the attainment of the flash-point by the sino-auricular node. The influence of respiration, of exercise, of emotion, and of various medicaments are all well recognized and need not detain us; nor need the partially understood condition of sino-auricular block do so.

Cardiac Irregularities.

I. Sinus arrhythmias.
II. From extra-systoles.
  A. Single: (1) auricular; (2) ventricular; (3) auriculo-ventricular or nodal.
  B. Double or multiple; of the same three varieties.
  C. Paroxysmal tachycardia.
III. From alternans.
IV. A-V heart-block.
  A. When complete: (1) from ventricular extra-systoles; (2) from the presence of two rhythmic centres.
  B. When partial: (1) sporadic intermissions; (2) rhythmical.
V. From sino-auricular block.
VI. From fibrillation and flutter.

The irregularity which arises from auricular fibrillation must needs engage much of our attention; something must be said about extra-systoles and paroxysmal tachycardia, and if time and space permit I should like to elicit some discussion on the subject of those irregularities which depend upon partial heart-block.

AURICULAR FIBRILLATION.

We are all familiar with the very common and serious form of irregularity which is associated with this condition, for it prevails in more than 50 per cent. of the patients admitted into a general hospital with symptoms of cardiac failure. The history of the growth of our knowledge of this condition is both fascinating and familiar. For many years a form of cardiac irregularity has been recognized in which there is complete arrhythmia, in which large and small beats of the pulse follow one another in complete confusion with less than the usual relationship between the size of the beat and the length of the preceding pause. To James Mackenzie belongs the great credit of pointing out the connexion of this with that form of venous pulse to which he gave the name of "ventricular," the normal evidence of auricular activity being absent. His first and natural inference that the auricle was paralysed was soon given up when he found that the *post-mortem* appearances were far from that of a paralysed organ. He then formed the opinion that auricle and ventricle were contracting at the same time owing to impulses coming from the auriculo-ventricular node; to this condition he gave the name of "nodal rhythm," but with scientific caution he reserved his final opinion. A very important stage was reached in 1909 when Rothberger and Winterberg on the one hand, and Lewis on the other, recognized the similarity between clinical curves from cases with complete arrhythmia and experimental curves obtained after fibrillation had been set up in dogs. Lewis's papers showed the consistency of the polygraph venous curves with the assumption that the auricle was not taking part in their causation—other, indeed, than by showing slight waves during the longer pauses. His electrocardiographic results were quite convincing, and finally he was able to demonstrate the fibrillating auricle in a horse which had the affection and was killed by being shot through the head and had its heart immediately exposed to view.

We now know that the presence of a pulse which has no recognizable rhythm, which is indeed non-rhythmical, carries with it the sure inference that it owes its lack of rhythm to this condition. The behaviour of the auricle is such that, while it loses all power of propulsion of the blood, it showers irregularly towards the auriculo-ventricular bridge hundreds of stimuli of which probably many never cross the bridge, and of those that do some may be so weak as not to elicit any response. Those that do cross and are strong enough to elicit a response reach the ventricle at irregular intervals, and, in harmony with the "all or nothing" behaviour of the heart pointed out by Bowditch, the contractions will be the fullest efforts of

which the ventricle is capable at those particular moments when the stimuli reach it. As the stimuli reach the ventricular musculature at irregular intervals, and as the strength of a ventricular contraction seems usually to depend upon the duration of its period of rest, we find that the beats do indeed vary in strength and efficiency. But careful inspection of tracings shows that this simple relationship is not characteristic of the irregularity of fibrillation, for weak beats may follow long pauses and strong beats may follow short pauses. That a weak beat should appear to follow a long pause may find an explanation in the long pause being so in appearance only: it may have contained one or more weak beats which had used up the energy of the muscle. A greater difficulty is presented by a short pause being followed by a strong beat. Probably here the explanation is allied to that advanced by Gaskell in his discussion on the pulsus alternans. The muscular fibres of the heart do not all recover at the same rate; the strength of any contraction will depend upon the number that have so far recovered as to contract at all, and the vigour of their response will depend upon the degree of their recovery. Considerations of blood supply may influence this; nor can the muscular fibres always be at concert pitch—"*neque semper arcum tendit Apollo.*"

The development of auricular fibrillation is at times—and according to some frequently—ushered in by transient paroxysmal attacks; in other cases the frequent occurrence of auricular extra-systoles has been noted. It is, however, certain that fibrillation of an abiding character is often found where there has not been any definite history suggestive of the actual date of onset. So latent or so slight may the symptoms be that many of its subjects do not even seek medical advice; the usual avocations of life in the way of work or of sport are carried on, and the condition may be detected only when for some reason a routine examination of the heart is made. On the other hand, the majority soon complain of dyspnoea and have the usual symptoms of cardiac failure combined with the characteristic non-rhythmical pulse with numerous imperfect beats, many of which do not reach the wrist even if they succeed in opening the aortic valve.

The Influence of Digitalis.

It has of course been well known for many years that the form of cardiac failure which is associated with a pulse and cardiac action devoid of rhythm calls for the free use of digitalis. This was fully grasped long before the nature of the arrhythmia was understood, and I have sometimes thought that this has been overlooked. We now know that the influence of digitalis in depressing the conductivity of the junctional tissues is especially developed in cases of auricular fibrillation, and that it is this property which makes it such a useful drug in the treatment of the cardiac failure with which it is associated. A large number of stimuli which would formerly have passed to the ventricles, goading them into contractions for which they were unprepared, are now arrested. Those stimuli which do reach the ventricles are separated by longer intervals; the ventricles have longer to recover and respond by stronger and more effective contractions. It is to be noted that the fibrillation of the auricles continues—indeed it is said that the use of digitalis tends to its perpetuation—and that the arrhythmia persists.

Who is there among us who has not repeatedly seen patients admitted into hospital with profound cardiac failure—shown by orthopnoea, dropsy, albuminuria, enlargement of the liver, venous fullness in the neck, cyanosis, and a pulse devoid of all rhythm—improve with rest in bed; and who can doubt that the free administration of digitalis has been followed by a slowing of the pulse, a diminution in the number of ineffective beats with a strengthening of others, and a recovery of adequate arterial blood pressure?

Opinions differ as to whether these beneficial effects arise purely from the diminution of the number of impulses reaching the ventricles, or whether, in addition to this, there is some direct action on the muscle of the ventricles by the drug. As a result of clinical experience I am strongly of opinion that some such action must exist. In cases of cardiac failure where the rhythm was normal, and where digitalis had been withheld on the ground that it was not likely to benefit the patient, I have given full doses with great benefit; I have seen dropsies and albuminuria go and the patient greatly relieved, though there has been little or no diminution in the frequency of the cardiac beats.

I have said that the drug must be given in adequate doses. I have very little experience of the administration of massive doses after the manner of Eggleston. I have used the tincture in doses of 10 minims every four hours or oftener. Sometimes the drug may cause a degree of heart-block which becomes complete, and in some cases during the development of this there have been no untoward symptoms; but this consummation should be avoided as excessive and not devoid of danger. When the action of the heart becomes infrequent under the influence of the drug, extra-systoles of ectopic origin begin to show themselves. These arise in either the right or left ventricle, or sometimes in one and sometimes in the other. Now an occasional extra-systole when the heart is slowing down under digitalis does not call for the stopping of the drug, but when they begin to appear rhythmically or even very often, though irregularly, after normal beats it is generally held that the drug should be lessened or stopped. I do not go so far as Lewis in this matter, and I have continued the use of the drug even when extra-systoles were frequent and rhythmical. Still I agree that caution is necessary.

It is the case, therefore, that there are a great many people who, in virtue of Withering's great discovery of the merits of digitalis and of the extended knowledge which has led to a more efficient use of the drug, are leading useful and in some cases active lives while they still have auricles which are fibrillating.

The Influence of Quinidine Sulphate.

It may again be mentioned that digitalis does not cause the fibrillation to cease and that the pulse remains non-rhythmical. In 1914 Wenckebach quoted the case of a South African Dutchman who was in the habit of taking quinine for the relief of malaria and who found that a cardiac irregularity of which he was the subject lessened while he was under the influence of the drug. Wenckebach's experience was that quinine abolished the irregularity of paroxysmal fibrillation, but had no effect on the more permanent variety. In 1918 Frey suggested quinidine as being less toxic and more soluble, and the use of this drug in a systematic manner has gone hand-in-hand with an understanding of the true nature of the affection. Here again we find ourselves on fascinating ground. All that I know about this matter I have learned from the work of Lewis. He gives the fullest credit to Romanes, to Mayer, to Mines, and to Garry, and as the result of elaborate experiments on dogs he has established on a firm basis the view that both auricular flutter and fibrillation are due to a circus movement of the wave of excitation and contraction which under certain conditions of impaired conductivity passes round a tract of muscle in the auricle and reaches the starting point at a time when the muscle has recovered its power of response. In this way a continuous wave of contraction passes round and round the course, there being always a short portion of responsive or partially responsive muscle between the advancing crest of the wave and its retiring tail. He has produced both conditions in the dog by electrical stimulation, and has found that the one may pass into the other. He seems to have proved that in flutter the ambit of the circus—the length of the course, in other words—is longer than in fibrillation, the former probably surrounding the two cavae in a common loop, the latter surrounding it may be one caval opening. In harmony with this the number of circuits in flutter varies between about 230 and 350, and in fibrillation it is about 400 to 500. In flutter the length of time occupied by the circuit is remarkably constant and the electrical oscillations vary only by almost immeasurable fractions of a second; in fibrillation the general course of the circuit may remain constant so far as can be made out, but the circuits vary in details of their exact course and in the time taken for their completion. In both cases centrifugal waves of excitation pass

off from this "mother wave." Those found in flutter are singularly regular and uniform from circuit to circuit; in fibrillation they are, as in the case of their "mother wave," irregular. The difference between flutter and fibrillation is therefore largely, if not entirely, a question of the degree to which conductivity is impaired by the distribution of the barriers to the passage of the stimuli, a degree which is greater in fibrillation than in flutter.

The experiments of Lewis carry conviction to my mind, and I am prepared to subscribe to his opinion that the former view which attributed fibrillation to a series of rapid impulses arising at one or more irritable centres in the muscle of the auricle to which it responds in a confused manner, is no longer admissible.

Now quinidine has two actions: it lengthens the refractory period and it slows conduction in the auricular musculature. It may be that the second effect is solely due to the first, but it is clear that the second, if acting alone, would tend to perpetuate fibrillation or flutter, whichever was present. The former effect may result in the excitation wave, slow passing though it may be, reaching the starting point before the muscle has recovered and is capable of response. Should this occur, let us say, in fibrillation, it may be that an excitation wave passing by a longer circuit may reach the starting point after the muscle has recovered, and so flutter or impure flutter may be established. With a further lengthening of the refractory period even this wave of excitation, slower still it may be in its passage than when it entered into its kingdom of dominance, may reach the starting point before the muscle has passed out of the refractory state. The circular wave is now brought to an end and the sino-auricular node immediately comes into its own again. During all the time that fibrillation or flutter has been prevailing it is almost certain that the sino-auricular node has been building up its stimulus material in the confident hope as it were of being able to initiate a stimulus as in the days of old, but every time the excitation wave of the circuit comes round its small magazine of stimulus material is blown up and it has to begin again. But it is not weary in well-doing; it bides its time, and it has its reward when its rivals of fibrillation and flutter are put out of action by the closing of the circuit.

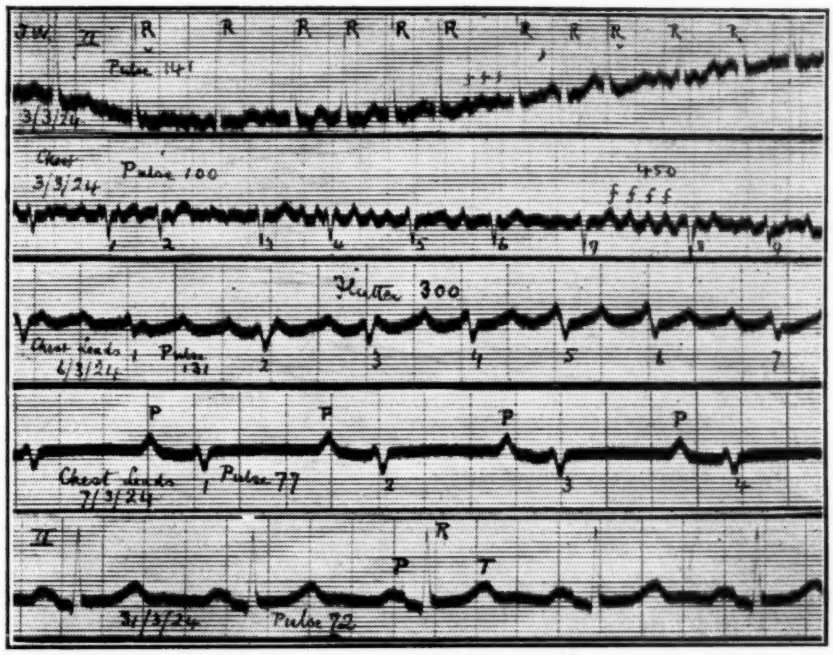

FIG. 1.—Case of mitral stenosis. Patient aged 35. Fibrillation known to have existed for at least eight months. First two tracings—Lead II and chest leads respectively—taken before quinidine was begun. From March 5th at 4 p.m. till March 6th at 4 a.m. five doses of 0.2 gram given. Tracing number 3 shows an almost pure form of flutter, 300 per minute; every second or third stimulus getting through to ventricle. Some faintness led to drug being stopped. Then from 10 a.m. on the 6th till 4 a.m. on the 7th nine doses of 0.2 gram were given. Shortly after the last dose the patient suddenly was conscious that the throbbing in the neck had ceased and the pulse was found to be regular and infrequent. Tracing number 4, taken by chest leads, shows the restoration of the normal rhythm with a long P—R interval. The last tracing from Lead II shows some tendency to a shortening of this long P—R interval.

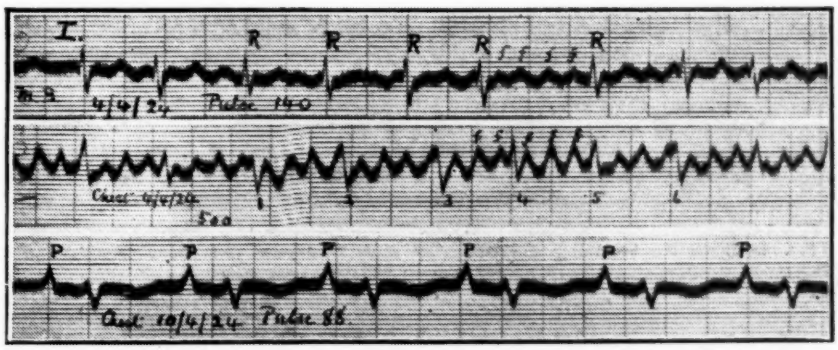

FIG. 2.—Case of mitral stenosis in a girl of 17; mitral disease for many years; fibrillation for many months, possibly more than twelve. First and second tracings taken before treatment—Lead I and chest leads respectively. On day following test dose patient had 2 grams of quinidine sulphate over a period of twelve hours in doses of 0.2 gram. The third tracing—chest leads—shows the restoration of the normal rhythm.

My experience of the use of quinidine is not great enough to entitle me to speak with authority or to discourse on statistics. I have followed in the footsteps of others and I have done so with caution. I have adopted the usual plan of giving on a selected day two doses of 0.2 gram at an interval of two or three hours. In the absence of any unfavourable reaction, doses of 0.2 gram have then been given every two hours, either until the normal rhythm was restored, or until in all 2 grams had been given, or until the drug had to be stopped on account of symptoms of poisoning. The effect of the drug is well seen in the tracings shown in Figs. 1 and 2.

It is clear therefore that in a certain number of cases the normal rhythm of the heart is restored by the use of quinidine. The answer to the question whether it should be used must depend upon the answers to the following: "What is the value of the restoration of the normal rhythm?" and "What are the dangers?"

I. Now the functions of the auricles of the heart are:

(1) To act as reservoirs for the blood which reaches them during the ventricular systole, when, of course, it cannot pass on.

(2) To convey, in harmony with their regular rhythmical action, regular rhythmical stimuli to the junctional tissues *en route* for the ventricles.

(3) To propel that residual amount of blood which has not, in obedience to other forces, already passed into the ventricles during the earlier and greater part of their diastole.

(4) By suddenly increasing the intraventricular pressure to lead to a closure of the auriculo-ventricular valves *before* the contraction of the ventricles takes place, and probably produce that slight stretch of the muscle which is conducive to efficient response.

Fibrillation does not interfere with the first of these functions; it leads, as we have seen, to a great perversion of the second; the third and fourth are not performed at all.

The restoration of the normal functions of the auricle *ought*, one would think, to be attended with benefit. There are, indeed, certain difficulties in understanding how the circulation of the blood goes on without the help of the

auricles. These can be explained, it is true, but the propelling power of the auricle cannot fail to be an asset. The influence of digitalis, though it lessens the number of stimuli reaching the ventricles, leaves them acting non-rhythmically—unless, indeed, complete heart-block has been caused. The restoration of the normal rhythm will tend to equalize the amount of blood the ventricles have to deal with at each beat, and the regular call on their activities, one would think, must be favourable.

In harmony with these views it is found that many of the patients express themselves as much better. In the two cases of which I have shown the tracings one patient found on awakening during the night that the throbbing in her neck had gone, and both are now very much better than when the disorderly rhythm prevailed, though all medication has been suspended. It has also been observed that when in some cases of cardiac failure the normal rhythm has been restored, good compensation has after a time been secured without any further use of drugs.

II. What are the dangers?

This is a very important matter, with which I must deal very briefly. It is certainly the case that many unpleasant and some dangerous symptoms may arise after moderate doses of the drug, even when the precaution of test doses has been employed. Among these may be mentioned nausea, vomiting, palpitation, giddiness, faintness, flushing, convulsions, syncope, apnoea, dyspnoea, and other signs of cardiac failure. In some cases grave symptoms of respiratory failure have shown themselves, and in others the symptoms would appear to be explained by the sino-auricular node not taking on its function when the fibrillation ends. In some cases where the patient was under the influence of digitalis at the time of the administration of the quinidine auriculo-ventricular heart-block has developed. In some embolism has occurred.

I must leave it to others with a greater experience than has fallen to my lot to advise us as to the dangers and how they may best be avoided. The selection of suitable cases is important. Those of short duration without great manifestations of cardiac failure do best, as might be expected.

The question of dealing with cases in which there are marked signs of cardiac failure is very important. It would seem best that these should be dealt with on the well understood methods of rest and digitalis, and that if thereafter it is deemed well to try to restore the normal rhythm a period of at least a week should be allowed to elapse before the quinidine is begun. Here again I must leave the matter to the meeting.

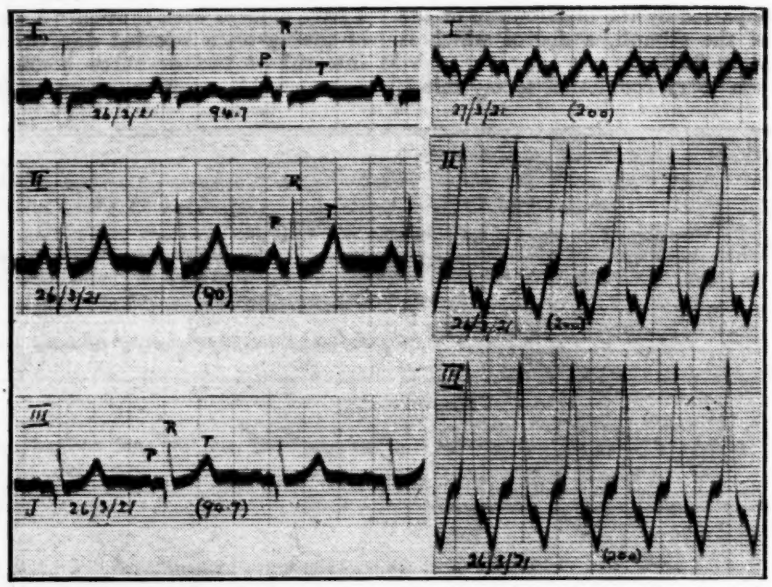

FIG. 3.—Shows the slow and fast rates in a case of paroxysmal tachycardia. Leads I, II, and III.

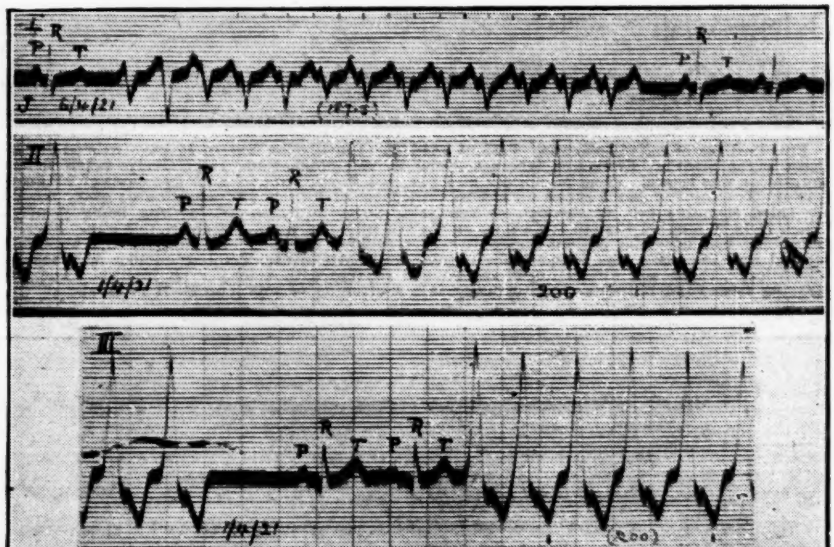

FIG. 4.—Shows the beginning and ending of short paroxysms from same case as Fig. 3. Leads I, II, and III.

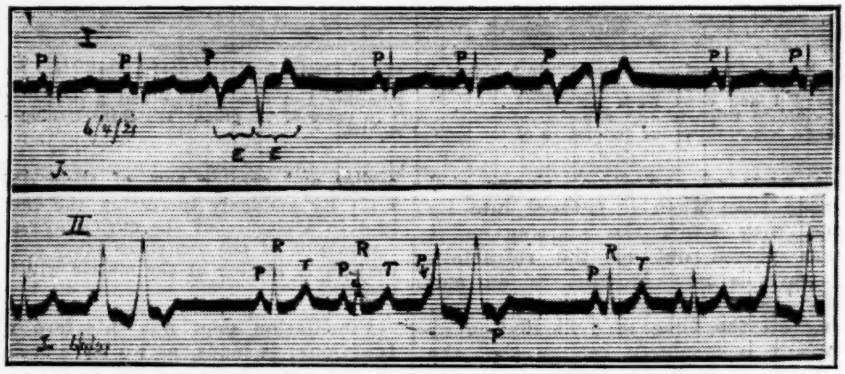

FIG. 5.—Shows extra-systoles occurring in couples from the same case as Figs. 3 and 4. Leads I and II.

Extra-systoles and Paroxysmal Tachycardia.

It is well known that extra or premature systoles may arise in the neighbourhood of the sino-auricular node, in the general musculature of the auricle, in the node of Tawara, in the main bundle beyond the node, and in the right or left ventricle, where probably they arise in the Purkinje network. All these varieties may now with certainty be distinguished from one another.

In many cases the occurrence of extra-systoles is not noticed by those the subjects of them, but they may be associated with feelings described as if a "beat were missed out" or as if the heart were "tumbling over." The

amount of discomfort, in some cases amounting to distress, varies greatly; some pay little attention to them, others of a more nervous disposition suffer greatly.

These extra-systoles can be produced experimentally in dogs by a great many different forms of stimuli applied to different parts of the heart and by such proceedings as clamping the aorta and by the injection of certain poisons. The electrocardiographic records of these are all found to have their clinical equivalents.

It seems a reasonable view to hold that isolated extra-systoles are due to the presence at their points of origin of some irritable focus from which at time to time discharge takes place. More especially in the case of the ventricles it happens that an extra-systole may fall after every normal systole, so that one cannot but think that the normal systole in some way causes the discharge which leads to the extra-systole. When a second extra-systole follows after the first it may be that the first causes the second; if so it would appear that an extra-systole is not so potent to determine a discharge as is a normal one, because extra-systoles are much more commonly isolated. If in the same way the second extra-systole gives rise to a third we are on the highway towards the condition known as paroxysmal tachycardia, between which and an isolated extra-systole there would appear to be the same difference as there is between a regiment of soldiers and one man. The tracings (Figs. 3 to 6) show these transitions well. The first extra-systole of a paroxysm follows on a normal beat at a varying interval; the second usually at a shorter interval than separates the beats of a fully developed paroxysm. Each paroxysm is remarkably constant as to its rate. The presence of some irritable focus sending out regular impulses would of course explain the phenomenon; I am not aware of any experimental work which might support the view that here, as in flutter, some kind of circus movement underlies the condition. It is very hard to understand the occurrence of extra-systoles occurring rhythmically and at longer intervals (Fig. 7, lower tracing). Over long periods of time I have found both auricular and ventricular systoles following on every second, third, fourth, or fifth beat; sometimes after following every third beat changing to after every fifth or sixth and maintaining that rhythm for some time. It has been tentatively suggested that the irritable focus may have a rhythm of its own, and that some of its stimuli may reach the muscle during the refractory period of a previous contraction and produce no effect, while others which cause extra-systoles reach the muscle at times when it can respond. Alternatively it has been suggested that the irritable focus has a rhythm which varies. This is a theory which I do not think can be seriously entertained. In the case of rhythmical extra-systoles of auricular origin, separated by considerable intervals from one another, it is possible to think there may be some rhythmically acting influence coming to the heart from without, but to account for similar extra-systoles of ventricular origin it is indeed difficult to picture to one's mind a portion, say, of ventricular muscle, surrounded, as it were like Brünnhilde in the opera, by some barrier which on the one hand protects it from having to participate in the successive contractions of the ventricle, and on the other hand leaves it free to send out rhythmical impulses.

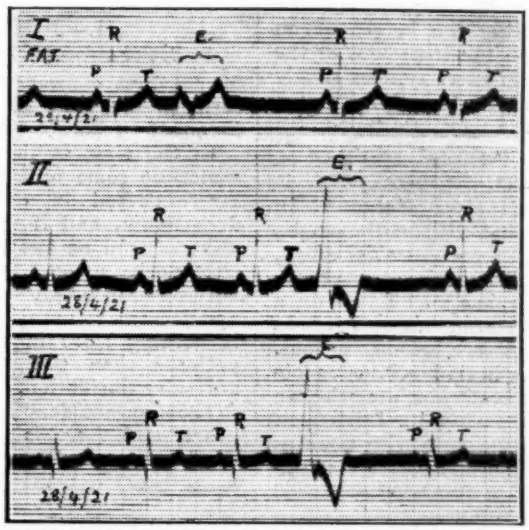

FIG. 6.—Shows isolated extra-systoles of right ventricular origin from the same case as Figs. 3, 4, and 5. Leads I, II, and III.

Clearly to recognize that a cardiac irregularity is due to the occurrence of extra-systoles is of course a matter of prime importance. It is sometimes very difficult, and sometimes I think it is impossible, to be certain without instrumental means. The conditions from which it has to be distinguished include the following:

(1) Sinus arrhythmias, which I shall not discuss, nor is the distinction so important as in the case of those that follow.

(2) Flutter and more especially fibrillation. When we have extra-systoles thrown in irregularly, and when some of these are of the intercalated form, it may be wellnigh impossible by the unaided senses to decide upon the cause of the irregularity, and the distinction is very important.

(3) True pulsus alternans. This may bear a superficial resemblance to the condition in which a premature systole following after each normal beat causes the pulsus bigeminus. The distinction is of course easily made by instrumental means, and the outlook is widely different in the two cases.

It is not easy to say anything useful about the prognosis of extra-systoles; in some cases they appear to be of no importance, but it must be admitted that they are more frequent in those who have cardiac valvular or muscular lesions and in those the subjects of increased blood pressure, that they often persist in spite of treatment, that they may be associated with severe distress, that their very existence may develop a severe neurosis, and that the patient cannot be reassured. Again it is said that they may usher in the condition of paroxysmal tachycardia or of auricular fibrillation. In most cases our prognosis will depend more upon the conditions associated with the extra-systoles than with the actual irregularity itself, and our treatment will be dominated by the view we take as to these. In cases where we find no organic disease of the heart we shall probably advise as to careful living with a strict avoidance of anything approaching to invalidism. Open-air pursuits should be encouraged and a reasonable amount of exercise should be taken. The diet should be light; mastication should be thorough, and the teeth should receive attention to make this possible, to eliminate oral sepsis, and to guard against flatulence. Coffee should be avoided; tea should be weak and fresh; tobacco should be limited. Many other precautions may doubtless be suggested. Digitalis should be avoided, though I fear it is often ordered, and the cautious use of ammonia bromide may give some relief. It is of interest to note that some observers claim to have seen great benefit from the use of small doses of quinidine, both

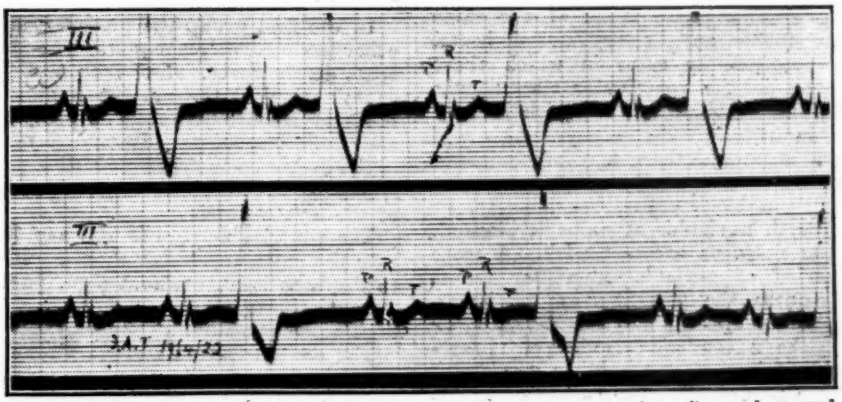

FIG. 7.—Shows right ventricular extra-systoles occurring in upper tracing after each normal systole and in lower tracing after each second normal systole.

in extra-systoles and in paroxysmal tachycardia. Fred M. Smith of Chicago is especially confident about this. The condition of the patient in cases of paroxysmal tachycardia is often extremely alarming, and of course some patients die during an attack. The sudden spontaneous cessation of the attacks makes it difficult to gauge the value of the different manœuvres, such as firm pressure on the abdomen, holding the breath after a full inspiration, etc., which are tried to cut them short. I have on more than one occasion given morphine hypodermically during the height of an attack, with the happiest results. In the treatment of the irregularity of the heart arising from extra-systoles steady encouragement of the patient is most necessary, for "A merry heart goes all the day, Your sad tires in a mile-a."

Pulsus Alternans.

I have mentioned the condition of *pulsus alternans*. In this every second beat is weak, and that without the excuse of being premature as in the case of the *pulsus bigeminus*. The prognosis of this is so grave that it is necessary to mention that a short period of alternans may follow on a premature systole without exciting alarm, but if it shows any tendency to persist the outlook at once becomes serious. The condition may be simulated in heart-block, complete or partial, when every second heart beat coincides with an auricular systole which prevents it having its full effect. The occurrence of an intercalated extra-systole, so weak as not to be detected at the wrist, may also simulate the condition, and it may also be found after the administration of atropine. When, however, these extenuating possibilities are eliminated we are certainly confronted with a very grave condition, and serious myocardial disease must be suspected. I have, however, reassuring recollections of two cases of well marked alternans in which the patients did well: one was in a frail woman with renal disease, who not only recovered but who subsequently survived an attack of pneumonia; the other was in a young man who had double pneumonia and pericarditis, and who afterwards joined the army and took his share in the great war.

Heart-block.

I must be very brief in what I say about the irregularities due to heart-block. When the block is complete and of some duration the ventricle, which sets its own rhythm, usually acts regularly, but to this there are at least two exceptions. One was pointed out by Wenckebach, and is due to the occurrence of extra-systoles originating in the ventricle and differing from those seen when there is no block in the post-extra-systolic pause being of the same length as those which follow on the rhythmical beats. Another exception is provided by cases in which there appear to be two centres in the ventricular musculature with different rhythms, one or the other of which in turn determines the ventricular rate.

When the heart-block is partial there may of course be no irregularity, as when every second auricular stimulus gets through. But when a block occurs sporadically, or when every third or fourth auricular stimulus is blocked, irregularities of varying patterns are met with. A mere lengthening of the period of auriculo-ventricular transmission, which is of course the mildest form of heart-block, causes no irregularity and its mention may appear irrelevant, but it may be a condition leading to heart-block, and I have found it last after the other manifestations of heart-block have passed off. The causes of heart-block are very diverse: acute or chronic lesions, recoverable or not, may be present, and the prognosis, so far as the duration of the block is concerned, will vary in harmony with these.

When a patient has partial heart-block it may pass off entirely and the A-C interval may in time become normal; on the other hand, it may become complete, and then the patient is usually better in health and more comfortable than when the block was partial; both when the block is partial and when it is complete he is liable to attacks of the Adams-Stokes syndrome, and any one of these may prove fatal. When a patient has complete heart-block, even if of some considerable duration, it may pass off completely, sometimes passing through a phase of partial heart-block and sometimes apparently without doing so.

There are many points of interest in the management of cases with partial heart-block, but considerations of time and space alike prevent their discussion by me. I am in hopes, however, that others may contribute to our knowledge of this important aspect of our subject.

II.—JOHN HAY, M.D., F.R.C.P.,

Senior Honorary Physician, Liverpool Royal Infirmary.

May I first express my appreciation of the masterly and lucid presentation of the subject to which we have just listened? I do not think it could have been done better.

In the time at my disposal I can do little more than underline some of the points referred to by the opener. He described in detail the various forms of cardiac arrhythmia, and it is clear that prognosis and treatment alike depend on the recognition of the particular type of irregularity present. Unless the nature of the irregularity is recognized prognosis is of necessity vague and hesitating, and treatment unsatisfactory. I venture to say that there is nothing more important in the management of heart patients than the power to recognize the presence of auricular fibrillation.

The war has done a great deal to focus attention on the heart, and there is now a far higher level of knowledge of this aspect of cardiac trouble, but even so there are many practitioners who have no confidence in their own opinion in the face of an abnormal cardiac rhythm. It is essential that all should be familiar with the characteristic manifestations of this common and serious deviation from the normal—namely, fibrillation of the auricle. In fibrillation the fundamental rhythm is lost, the action of the ventricle is disorderly and chaotic, and exercise aggravates the arrhythmia. There is a tendency to consider a rapid ventricular action as an essential characteristic of fibrillation, but it is well to remember that even in the absence of treatment with digitalis the ventricular rate may be well within normal limits.

It simplifies matters if we recognize that the more common irregularities can be arranged in two groups. In the first group are sinus arrhythmia, in which there is a rise and fall in frequency associated with respirations, and the arrhythmia due to the occurrence of premature beats. In the second group are the disorderly action of auricular fibrillation and the alternating pulse. Nearly every patient presenting an irregular action of the heart belongs to one or other of these groups.

In the first group the prognosis may be considered good, other things being equal. The presence of premature beats is, however, always an indication that a thorough examination of the patient should be made, especially in those of mature years. The prognosis will depend on the associated conditions. In the second group a guiding factor is the degree of distress induced by the onset of fibrillation; from this it is possible to gauge the integrity or otherwise of the myocardium.

The ventricular rate is also a guide—the more rapid the rate the more unsatisfactory the outlook; failure to respond to digitalis is an ominous sign, particularly if the fibrillation has been superimposed in a heart handicapped by a high blood pressure.

The ominous import of an alternating pulse is now well recognized; I question, however, whether Professor Wardrop Griffith is quite justified in regarding the transitory alternation following an extra-systole with equanimity. I believe it has the same evil significance as the fully developed pulsus alternans, although in a less degree. Alternation occurring in a very rapidly acting heart is, of course, of little moment.

The treatment of auricular fibrillation by quinidine sulphate has attained a degree of popularity at the present time and deserves our consideration. Recently I have had the opportunity of pooling the results obtained by a number of observers, and the paper will shortly be published. I may, however, say that in 166 cases of fibrillation associated with valvular disease quinidine was successful in restoring a normal rhythm for a period of more than three

months in 27.7 per cent.; in 87 cases of fibrillation in which there was no valvular disease the percentage of success was higher—namely 40 per cent. The best results were obtained in patients affected by Graves's disease and toxic adenoma; in 12 patients a normal rhythm was restored and maintained in 66 per cent.

In some of these patients partial thyroidectomy was an element in the treatment. It has been found that the consequent diminution of the thyrotoxic condition facilitates the action of the quinidine. A valuable paper by Dunhill, Fraser, and Stott, in the July number of the *Quarterly Journal of Medicine*, deals with this aspect of the subject. It is becoming more generally recognized that any septic focus interferes with the action of quinidine and should be radically dealt with before starting treatment. It is probable that in the treatment of fibrillation by whatever mode of therapy every possible source of sepsis should be explored and dealt with.

The last word in this discussion must be that the essential thing is the recognition of the nature of the irregularity present. It is here that the difficulty lies, and it is a matter of moment that every practitioner should make himself familiar with the clear clinical manifestations of the condition.

III.—FREDERICK W. PRICE, M.D., F.R.S.EDIN.,

Physician, National Hospital for Diseases of the Heart, London.

THE subject of irregular action of the heart is of very great practical importance. Formerly it was notoriously a source of perplexity and difficulty to the clinician. A patient, or, it may be, a candidate for life assurance or for an appointment, was examined, and in the course of physical examination irregularity of the pulse may have been observed—with or without the usual physical signs of organic disease of the heart. What significance was the practitioner to attach to the irregularity of the pulse in itself? It was known that this might, on the one hand, signify definite and even serious impairment or disease of the heart, or, on the other hand, that it might be of no practical importance. It was not possible, however, to determine the significance of the irregularity in any given case, because there were no means of differentiating the types of irregularity, or what any particular type signified. The employment of the clinical polygraph and of the electrocardiograph has changed all this, and the problem has been solved; for we are now able to classify almost every case of irregular action of the heart into types, and we know what each type signifies. I would, at the outset, emphasize two points—namely: (1) Even now, notwithstanding all that has been written on it, and the prominence given to the subject of late, there is not infrequently ignorance, or a lack of appreciation, of the recent advance in knowledge of the problem and its great practical importance. (2) The work of elucidation having been accomplished by means of the clinical polygraph and the electrocardiograph, it is not now necessary to employ either of these instruments in the vast majority of cases, the use of a Dudgeon's sphygmograph being sufficient, and in a large proportion merely auscultation. This is of great practical importance to the general practitioner. For example, by means of the aid of the stethoscope alone it is almost always possible to determine whether intermission of the pulse occurring during the course of acute infective diseases, such as acute rheumatism, diphtheria, and pneumonia, is due to an extra-systole failing to reach the wrist, or to partial auriculo-ventricular block—a point of great prognostic importance.

My custom is to classify all cases of cardiac irregularity, apart from rare exceptions, into six groups: (1) what is called sinus irregularity; (2) irregularity due to premature contraction or extra-systole; (3) irregularity due to heart-block—whether sino-auricular, auriculo-ventricular, or intra-ventricular; (4) irregularity due to the pulsus alternans; (5) irregularity due to auricular fibrillation; and (6) irregularity due to auricular flutter. To-day we are concerned only with differential diagnosis, significance and prognosis, and treatment; and, in order to try to be of some practical help to the general practitioner, I shall almost entirely confine my remarks with regard to diagnosis to the use of the stethoscope and of a Dudgeon's sphygmograph, omitting all reference to the clinical polygraph and the electrocardiograph. May I emphasize the great advantage of auscultation at the apex over the other methods of physical examination in endeavouring to determine the type of irregular action of the heart?—and the ventricular rate should always be counted at the apex.

With regard to sinus irregularity, it should always be remembered that while the condition is much more frequently met with in the young it may occur at all ages. There is usually a definite relationship to respiration, and when irregularity of the cardiac action is found to be definitely related to respiration it is in all probability of the sinus type. There is a variation in the length of the diastolic period of the cardiac cycle, while the systolic period remains constant, and this can be detected by the stethoscope. If a tracing of the radial artery be taken, the intervals between the beats will be found to vary, but the actual variations are not numerous, while the pulse beats are of equal, or nearly equal, size. There is no reason to suppose that sinus irregularity is either indicative of an impaired heart or that it adds to the gravity of any diseased condition which may be present, so that this form of irregularity may be entirely disregarded.

Extra-systoles are of great practical importance; they constitute one of the most frequent causes of irregularity of the pulse and may give rise to very disagreeable sensations. It should be remembered that while they are of more frequent occurrence in the middle-aged and elderly, they may be met with in the young. They may appear at long or at frequent irregular intervals, or regularly after each normal beat, or after every second, or third, or more, normal beats, or in paroxysms, the last being an infrequent cause of paroxysmal tachycardia. In most cases the pause which follows the premature contraction is abnormally long, being called the *compensatory cause*. An extra-systole may be so feeble that no wave is felt at the wrist, so that there is simply an abnormally long pause, resulting in an "intermittent" pulse. If a single extra-systole with its succeeding compensatory pause occur after every two normal beats, the pulse beats occur in threes, the condition being known as pulsus trigeminus; but if the premature contraction is so feeble that no wave reaches the wrist, the pulse beats are paired (pulsus bigeminus). If an extra-systole occur regularly after each normal beat and the extra-systole fails to reach the wrist on each occasion, the rate of the arterial pulse is halved. The commonest cause of intermission of the pulse, pulsus bigeminus, pulsus trigeminus, and halving of the pulse rate is the occurrence of extra-systoles. On auscultation, in the vast majority of these cases, two heart sounds are synchronous with each cardiac cycle; sometimes only the first sound; very rarely is there an absence of both sounds. In the great majority of cases a correct diagnosis of the existence of extra-systoles can be made simply by palpation and auscultation, especially the latter. The differential diagnosis between intermission of the pulse, pulsus bigeminus, pulsus trigeminus, and infrequency, including halving, of the pulse rate, due on the one hand to extra-systoles, and on the other to partial heart-block, can be readily made, as a rule, by means of palpation and auscultation, and will be referred to later. It is sometimes very difficult, if not impossible, to diagnose between extra-systoles occurring frequently and at irregular intervals, especially if of auricular origin, from auricular fibrillation by palpation and auscultation alone; but in such cases a sphygmographic tracing is almost invariably sufficient.

What is the significance and prognosis of extra-systoles? They indicate that at the time of the premature contraction some portion of the myocardium below the sinus is more excitable than the sinus. This may or may not be due to some structural change in the myocardium; it may, for example, be caused by poisoning of the heart wall without structural change. The prognosis of extra-systoles is of great practical importance, and there is considerable diversity of opinion on this question. While it may be granted that extra-systoles are of more common occurrence in the subjects of organic heart disease than in those who are not, and are more frequent in myocardial degeneration

than in valvular disease, further experience has not led me to change the opinion I expressed in 1911—namely, that when extra-systoles are considered by themselves (that is, without reference to the conditions with which they may be associated) there is so far no evidence for supposing that they are either indicative of an impaired heart or that they add to the gravity of any existing morbid condition. Furthermore, while it is true that extra-systoles may precede the occurrence of other forms of cardiac irregularity, such as the complete irregularity associated with auricular fibrillation, it should be borne in mind that these might have arisen independently. The prognosis, therefore, should be based entirely upon the causal or associated condition.

With regard to treatment: this should be directed in the first instance to the causal or associated condition, the general health, and any existing cardiac failure, if present. I have never found digitalis or quinidine of any value for the irregularity itself. Bromides are frequently of benefit for the associated subjective symptoms, especially when there is irritability of the nervous system or insomnia.

Sino-auricular heart-block is a very rare condition, and the only remark I am going to make about it is that it may cause intermission of the pulse. Intraventricular block may give rise to gallop rhythm. The electrocardiograph is necessary for diagnosis. There are three degrees of auriculo-ventricular block: (*a*) there may be merely a prolongation of the interval which separates the commencement of the contraction of the auricle and that of the ventricle, each stimulus of the auricle reaching the ventricle, which duly responds; (*b*) the stimulus does not always reach the ventricle—in other words, the ventricle does not always respond to the stimulus from the auricle; and (*c*) a condition in which no impulses reach the ventricle from the auricle, so that the auricles and ventricles beat independently of each other. The first two of these are referred to as "partial heart-block," and the third as "complete heart-block." The first grade may give rise to irregularity of the pulse, on account of variations in the length of the intervals between the contractions of the auricles and of the ventricles. In my opinion this grade can only be recognized by means of the polygraph or the electrocardiograph. The second degree of heart-block may give rise to dropped beats, pulsus bigeminus, pulsus trigeminus, and infrequency, including halving, of the pulse rate. As already stated, the differential diagnosis between these conditions, due on the one hand to extra-systoles and on the other to partial heart-block, can readily be made, as a rule, by means of palpation and auscultation. In the former case a premature beat can be detected at the apex-beat, and on auscultation one or two heart sounds will, in the great majority of cases, be audible during the early part of the pause, because the ventricle has contracted; whereas, in the case of partial heart-block, there will be absence of apex-thrust and of heart sounds during the pause, because the ventricle has failed to contract. When the ventricular rate suddenly falls to half its former rate, in all probability the case is one of 2 : 1 heart-block. In complete heart-block the pulse rate is slow, not infrequently being between 20 and 30 beats a minute, and usually not more than 36, though I have seen cases in which the rate has been considerably higher—even up to 62 beats a minute. It is sometimes difficult to distinguish between partial and complete heart-block without the aid of the polygraph or electrocardiograph. Most cases with a ventricular rate of 36 or under, however, are cases of complete heart-block. Also the presence of more rapid pulsations in the jugular veins than the rate of the radial pulse, and the presence of small waves occurring at regular intervals on the descending limb of the sphygmogram, afford help in differential diagnosis. In the opinion of some, faint muffled sounds may occasionally be heard during the long pause, due to the contractions of the auricles, although personally I have never been able to detect them. Some observers, too, have noted also an accentuation of the first sound, synchronous with the large pulsation in the jugular vein, when the auricular and ventricular contractions coincide. The occurrence of partial heart-block during the course of infective diseases is a sign, and may be the only sign, of myocardial involvement.

Digitalis and its allies are contraindicated in the first and second grades of heart-block, but not in complete heart-block, in which they may be given when there is dropsy or some other indication for their use. I have never found atropine, strychnine, oxygen, or amyl nitrite of any value in complete heart-block. Following Phear and Parkinson, I have recently employed, with complete success, 5 minims of a 1 in 1,000 solution of adrenaline hydrochloride, administered hypodermically, in a case of Adams-Stokes syndrome due to complete heart-block.

By pulsus alternans is meant a condition of the pulse in which, while the rhythm is perfectly regular, a large beat and a small beat alternate. In the vast majority of cases it is necessary to take a tracing of the radial artery in order to recognize the condition. The prognosis appears to depend upon whether the condition is associated with tachycardia or not. In the former event it does not appear to have any serious significance in itself. In the latter, however, it is an indication of extreme exhaustion of the heart muscle. When the condition lasts only for a few cycles, this exhaustion may be only temporary, but even in these cases the prognosis should be guarded; when it is continuous, so far as my experience goes, death occurs within three years at the latest. It would be interesting to know whether the two cases mentioned by Dr. Wardrop Griffith were associated with tachycardia or not.

It is of the utmost practical importance that the variety of irregular action of the heart indicative of auricular fibrillation should be recognized, owing to its bearing on the diagnosis, prognosis, and treatment of cardiac affections. When auricular fibrillation has once set in, in the great majority of cases it persists for the remainder of life. This type of irregularity presents the following features: (*a*) It is continuous. (*b*) The irregularity is complete; the rhythm is irregularly irregular. In a sphygmogram it will be found that two beats of the same length or amplitude rarely follow each other. There is often no relation also between the length of a pause and the amplitude of the beat which follows it—that is, a short pause may be followed by a strong beat, or a long pause by a weak beat. There may be superadded ventricular extra-systoles, occurring either isolated at irregular intervals, or, as is more usually the case, occurring regularly after each normal beat. In the latter event there is either pulsus bigeminus or coupling of the beats, or the premature contraction may be so feeble that no wave reaches the wrist, in which case the pulse rate is halved. This type of irregularity can usually be differentiated from the other types by palpation of the radial pulse and of the apex beat, and still better by auscultation at the apex. We may be reasonably certain of the existence of auricular fibrillation from the mere presence of complete irregularity of the pulse. In my opinion, the prognosis of auricular fibrillation depends mainly upon the causal or the associated condition, especially the integrity or otherwise of the myocardium, and whether any existing tachycardia can be controlled by digitalis medication.

On account of lack of time, I shall not deal with the subject of digitalis *versus* quinidine in the treatment of permanent auricular fibrillation (or of auricular flutter). With regard to digitalis, if auricular fibrillation is accompanied by tachycardia—whether there is mitral disease, aortic disease, or disease of the myocardium, the drug should be administered. With regard to dosage, my custom is to begin with 1 drachm of the tincture per diem, and to continue until there is anorexia, nausea or vomiting, diarrhoea, headache, an unduly slow pulse, or "pulsus bigeminus" or "coupling of the beats." The drug should then be stopped until these symptoms have passed away. In the great majority of cases the patient relapses, and the indication then is to find out what dose suits him best—that is, the dose sufficient to control the action of the heart without at the same time giving rise to any toxic symptoms. One method is to begin with half the original dose, and this can be increased or diminished *pari passu* with the rate of the heart. Having discovered this dose it will be necessary, in the great majority of cases, for the patient to continue the drug for the rest of his life. In the course of time variations in the dose may be found to become necessary. The ventricular rate should

be watched. Pulsus bigeminus is a danger signal, and we should either stop the drug for a few days or diminish the dose. I have used the method of massive doses introduced by Eggleston with success in a number of more urgent cases. Intravenous injections of strophanthin are invaluable in still more urgent cases, or when the patient cannot tolerate any of the other preparations of the digitalis series of drugs by the mouth. The results are the same as those following the administration of digitalis or strophanthin by the mouth, but are much more rapid, improvement in the general symptoms commencing within about two hours and becoming very pronounced six to ten hours later. The injection should not be repeated within twenty-four hours, and then only in special circumstances, and in a smaller dose, depending upon the ventricular rate. Digitalis medication by the mouth may be commenced a day after the intravenous injection. There is no evidence that the more recent preparations of digitalis are either pure substances or are more reliable than the tincture or the fresh infusion, both of which contain all the glucosides. When auricular fibrillation is not accompanied by tachycardia, no marked result usually follows the administration of digitalis.

In most cases of auricular flutter there is a constant and uniform ratio between the auricular and ventricular rate, so that the rhythm of the arterial pulse is regular. When, however, as is not infrequently the case, the response of the ventricle to auricular contraction is at irregular intervals, there is irregularity of the pulse rhythm; it may be even markedly so. In some of these cases the sphygmogram may resemble that of a case from auricular fibrillation; but if a sphygmogram from a case of auricular flutter be carefully studied it will be found that, even although the ventricular rhythm is very irregular, the pulse-beats measure out into groups of equal length, whereas this is never the case in auricular fibrillation. The diagnosis of auricular flutter is not infrequently impossible without the employment of the polygraph or the electrocardiograph; indeed, in some cases a correct diagnosis cannot be made with certainty even although the polygraph be employed, an electrocardiographic examination being necessary. I refer to the question of diagnosis without the use of these instruments under paroxysmal tachycardia, in which the great majority of cases with regular rhythm or with pulsus alternans are due to temporary attacks of auricular flutter. The same dosage of digitalis should be employed in cases of auricular flutter as in cases of auricular fibrillation with tachycardia, and the drug should be continued until the full physiological reaction is obtained. After this, one of two plans may be adopted: (1) The dosage may be lessened, and afterwards the administration of the smallest dose necessary to control the ventricular rate continued in the hope that the flutter may cease. This plan is generally to be preferred, and I have had four successful cases of this kind within the last six months. (2) Large doses may be continued in the hope of inducing auricular fibrillation, after which the administration of the drug is discontinued for some days in the hope of a return to the normal rhythm.

A few words about paroxysmal tachycardia. This term appears to be used in different senses. I would suggest that it should be employed to denote a condition in which a marked acceleration of the cardiac rate occurs, which commences suddenly and abruptly and without apparent cause, lasts for a varying period, ceases suddenly and abruptly, and is due to an abnormal rhythm—the stimulus for cardiac contraction, instead of arising at the junction of the great veins with the auricle, having its origin at an abnormal point. The vast majority of cases of paroxysmal tachycardia are the result of (1) temporary auricular flutter with tachycardia, or (2) temporary auricular fibrillation with tachycardia. Among other causes are paroxysms of extra-systoles. We should consider the possibility of paroxysmal tachycardia whenever an individual is conscious of a marked increase in the cardiac rate or complains of attacks of palpitation, in either case occurring suddenly and without apparent cause, or suffers from dyspnoea on exertion, and other indications of cardiac failure coming on rapidly. In some cases a correct diagnosis cannot be made with certainty even though the polygraph be employed, an electrocardiographic examination being necessary. The most important factors from the diagnostic point of view are: (1) The commencement and termination of the attack of tachycardia. The suddeness and abruptness of the onset and termination of the tachycardia is a characteristic feature—the maximum rate is attained within a few seconds, and the return of the cardiac rate to what it was prior to the attack occurs equally quickly; whereas in tachycardia associated with a normal rhythm the onset and termination are gradual. (2) The cardiac rate. A persistent rate of over 160 is almost invariably due to an abnormal rhythm, and a persistent rate of over 140 may be due to the same cause. (3) The cardiac rate is not influenced by change of posture or other forms of physical exertion. Within the last few months I have employed 5 grains—after a preliminary dose of 3 grains, to test for possible idiosyncrasy—of quinidine once daily in several cases of paroxysmal tachycardia, in the intervals between the attacks, to prevent their recurrence, and it has been successful in each.

IV.—W. J. TYSON, M.D., F.R.C.P.,

Honorary Physician, Royal Victoria Hospital, Folkestone.

I THINK that it will interest this Section to be reminded that the subject of prognosis in heart disease was brought forward at the Annual Meeting of our Association at Brighton in the year 1886. I suggested to the collective investigation, then in full work, that this subject should be taken up, and Sir Andrew Clark was the chosen spokesman to begin the debate.

Within the last few days I have again read through the reports of this discussion, and I can assure you it is strange reading. Sir Andrew only dealt with valvular disease of the heart known to have existed over five years without causing serious symptoms, and in introducing the subject the author said that he must deal with it from a personal and empirical standpoint—a position which I intend to occupy this morning. I may say in passing, in reference to the above debate, that practically only the valvular side of heart disease was referred to. Dr. Frank Donaldson of Baltimore was the only speaker who mentioned the wall being sometimes diseased. The speakers, including the late Dr. Gairdner of Glasgow, Dr. Bristowe of London, and Dr. Leach of Manchester, drew attention to the points, which we now know, that rheumatic and choreic murmurs may and do disappear. There were two significant expressions, which need to be repeated to-day: (1) a case mentioned by Clark: "The patient felt ill only since he was told he had heart disease"; and (2) by Bristowe: "As to treatment, I am sometimes inclined to think that it is a pity there are physicians. Many persons would lead a happy life enough but for them; it is quite time enough for persons to discover that they have heart disease when they begin to feel the effects of it."

The speakers did not consider the importance of the presystolic murmur in the same way as we do to-day, but they one and all—as opposed to Laennec—laid stress on the non-importance of most mitral systolic regurgitant murmurs, and also of many aortic regurgitant murmurs. Clark's treatment was simple: moderate diet, moderate exercise, bowels attended to, work, and encouragement. Digitalis was more recommended, in almost every case, than it is to-day; in other words, its real action and proper place was not then understood, for, as we know, it slows the rate of the left ventricle without acting on the ventricle, but through the vagus nerve acting on the supraventricular tissues.

It is a long time since 1886—thirty-eight years—and this heart subject is again brought up at an Annual Meeting. What changes of views have taken place during this interval! I am in a somewhat different position from many who are here to-day. I have practised for forty-five years—hospital, private, and consulting; more than this, living in a comparatively small town, I have had the opportunity, and I may say the advantage, of following up my cases. I am purely a clinical physician, and lay no claim to having known or worked the polygraph or the electrocardiograph, although I have seen them used. I have read pretty largely

the heart literature, but I am giving you my own personal views and thoughts.

In the first place, I do not think that my patients have suffered by my not having used the above instruments, but I must at once acknowledge that by these and other means our knowledge of the classification and diagnosis of diseases of the heart has been advanced. One now recognizes sinus irregularity or respiratory arrhythmia, auricular fibrillation, extra-systoles or rather premature systole, heart-block, pulsus alternans, and tachycardia, but how far treatment has advanced in the same direction I think is very doubtful. Looking back on my past cases I now recognize that I have seen examples of all the above conditions.

It is forty years ago that I remember seeing a man of over 70 years of age suffering at intervals with what appeared at the time like an epileptic fit; his pulse varied between 30 and 15. I could find no disease to account for this variation, and of its origin or cause I knew nothing. I found that by careful watching of the pulse I could tell when the fit would arrive; when this reached 22 to the minute the fit would occur. Now, looking back, how plain the case appears!

There appeared about the same time in the BRITISH MEDICAL JOURNAL for 1879 and 1880 a series of letters on slow pulse, and, reading these again in the light of our present knowledge, I have no doubt that nearly all these cases were those of heart-block, yet not a single explanation of the cause is given.

Again, take the case of respiratory arrhythmia, and consider how many young people have been condemned, and parents worried out of their lives, by being told that they had serious heart trouble and must rest from work and play. I have had patients sent to me in ambulances from considerable distances, with full directions for permanent rest and continuation of drug treatment. It requires courage and tact to get these patients up again and at work.

The intermittent pulse we have all known for years—technically now called the premature systole or extra-systole—and have at last classed it in accordance with its true and correct value.

We must all be particularly interested in auricular fibrillation, for we can now understand why many of our cases with a quickened pulse, say 120, with apparently no other disease to account for this rapidity, were benefited by digitalis, whereas other heart troubles were not so. It is that in many cases of fibrillation we are enabled by experience to find out the exact dose of digitalis to keep the pulse at its proper rate—say 70.

Tachycardia must have interested us all for many years and surprised us by being uninfluenced by rest and by exercise. If I were asked what has been the greatest benefit conferred upon our patients during the last decade by men like Mackenzie and Lewis, I should say this, that in clinical medicine the effect of cardiac disease is to be estimated by the extent to which the ventricular action is affected, and the view that valvulitis is the central factor in heart disease has proved misleading. In the words of Lewis, "The secret of successful prognosis lies in the actual tests of efficiency."

I had an interesting experience during the war in connexion with our own profession. I was asked by the Government to examine all the doctors of Kent, Surrey, and Sussex between the ages of 40 and 55 with respect to their efficiency for war work. One of my colleagues was a young heart specialist. He reported unfavourably on some men as unfit on account of their supposed heart defects. These men afterwards wrote to me—I suppose as being a Kent man and well known to them—saying that they were in large practice and working hard, and had never noticed anything wrong with their heart or their breathing until this army examination. I replied that they should continue their work and think nothing about their hearts until some symptoms appeared, and even then, finding out their limitations, to go on working and live within these.

It is sad to me, and I feel sure that it is to you, to know how many people have been upset and depressed by this frequent heart examination. It is quite time enough to know this when the heart begins to give trouble. When breathlessness, pain, palpitation, giddiness, faintness, fainting, and fatigue appear, this is the time to think whether something can be done. One would naturally then examine for oral sepsis, septic tonsils, chronic appendicitis, and acute, subacute, or chronic pulmonary lesions. These might influence unfavourably the prognosis in structural disease of the heart.

I have watched aortic disease—regurgitant murmurs—for many years, and it has always appeared to me difficult to tell which of the cases are going to do well and which badly. Of course it depends on the amount of the extra reserve power of the heart wall, and this, I take it, can only be gauged by testing in exercise. Personally I have never seen a case of malignant endocarditis recover. Dr. Cotton says that a palpable spleen is usually associated with subacute infective endocarditis, but one hardly needs the presence of this sign to diagnose the above cases.

In conclusion, the irregularities have been already mentioned, and are now well known. As regards prognosis, a man's capacity for work is ascertained most certainly by putting him to work and by watching his reaction; after finding out what his limitations are he should live within them. There are two diseases in which it is particularly necessary that rest should be maintained for some time—namely, rheumatic fever and influenza. The two most important valvular troubles are the presystolic and the aortic regurgitant, but these vary greatly in prognostic value.

I know of only one outstanding heart drug—digitalis—and even this one is practically confined to the treatment of auricular fibrillation, but I have found theocine-sodium-acetate useful where there is cardiac dropsy.

GENERAL DISCUSSION.

Dr. FOSTER remarked that the irregularities of youth, and extra-systoles, were not now viewed so seriously; prognosis was good and treatment simple, especially in those cases where the over-anxious parent would give the child its freedom. The condition of auricular fibrillation was on a different footing, inasmuch as there was often permanent damage done, thereby prejudicing a good prognosis. Digitalis still remained their favourite drug and held its own. Quinidine, however, sometimes acted when digitalis failed. A young woman with mitral stenosis developed suddenly auricular fibrillation, was intensly ill, and cyanotic with much cardiac distress; quinidine was given and in thirty hours the patient was quite well. She had a recurrence in eighteen months; owing to some alarming reports of the use of quinidine, digitalis was given, and the patient died in thirty hours. He asked, what was the value of giving digitalis followed by quinidine? However optimistic one might be in heart cases, the outlook in cases of fibrillation was pessimistic; and those engaged in cardiological research should use all their resources to find out the cause of the condition, so that it might have treatment before the damage was done.

Dr. HALLS DALLY (London) said they were all very greatly indebted to Professor Wardrop Griffith for the admirable and lucid manner in which, within brief compass, he had dealt with the salient features of the main types of cardiac irregularity, and to Professor John Hay for his views on the practical distinction between premature contractions and auricular fibrillation. The essential difference, which Professor Hay had clearly pointed out, lay in the fact that the former possessed a dominant or fundamental rhythm, while in the case of auricular fibrillation this fundamental rhythm was entirely lacking. The more experience one had of electrocardiographic and polygraphic methods, the easier it often was to pick out the one class from the other without actual recourse to these methods at the time of clinical examination. Now and again, however, one came across a case in which the exact diagnosis became difficult or impossible without these useful aids. It had been remarked by another speaker that he regarded prognosis in auricular fibrillation as being always unfavourable. When first the condition was described—and one had not then the opportunity of finding out the subsequent history over a series of years—auricular

fibrillation was thought to be a grave condition, and to limit seriously the length of life. In some cases it undoubtedly did so, but with increased experience his own view was a far less gloomy one, since many patients with this condition lived for many years, and in the absence of other complications of gravity were capable of leading active and useful lives. Digitalis was still their sheet-anchor, and he confessed that he found no other drug so useful in a large number of organic cardiac conditions. He found, however, that many practitioners were afraid of giving it, in the case of auricular fibrillation as well as in other cases, in the full dosage which was necessary to secure a state of partial heart-block, or in persisting in its use over a sufficiently long period of time. Touching the effects of quinidine in cases of auricular fibrillation, their experience at Mount Vernon Hospital was that it should be avoided in the acute cases with rapid onset, and that it achieved most success in those of more chronic type. This might probably be explained along the lines indicated by Professor Hay, that the amount of toxaemia was usually proportional to the acuteness of the condition, and that success was only to be expected when the toxic focus was first removed. Premature contractions occurring, in the absence of associated organic disease, in individuals under the age of 40, on the whole carried a good prognosis; when they occurred above this age he ventured to think that their significance was greater, as indicating some defect which might prove to be more serious, although over 40 they were not infrequently met with. He was in agreement with Dr. Tyson in believing that, at any rate in the case of anxiety neurosis, grave harm was often done to the patient by his being told that there was something wrong with his heart.

Dr. G. J. Langley (Manchester) said that the most common cause of irregularity was probably produced by ventricular extra-systoles, and these he divided into two groups. The common one in which extra-systoles occurred might probably be regarded as physiological, inasmuch as the usual complaint of the patient was that he could not get to sleep owing to "the heart's bumping." The slowing of the heart which occurred prior to sleep doubtless gave a longer diastolic period, during which there was increased opportunity for the ventricle to introduce an extra-systole. Such cases showing extra-systoles could be usually recognized easily, and it was found that the irregularity completely disappeared after sufficient exercise had been taken to raise the pulse rate. There was, however, another group in which the extra-systoles did not disappear on exercise, and these were prone to occur in patients past middle life. One was tempted to believe that in such the irregularity might be due to changes in the myocardium. That such changes were usual was shown by the work of Gosse in connexion with the alterations in the arterioles of the coronary circuit, and for this reason they should be regarded as of serious import. In connexion with the actual treatment of auricular fibrillation, it was possible that physicians had not given enough consideration to the question of the time occupied by a course of treatment, and where time could be saved it was of natural help to the patient. His own method had been to give a massive dose of digitalis tincture according to the plan instituted by Eggleston, and to follow this by quinidine according to the plan suggested by Emanuel of Birmingham, by which 6 grains of quinidine sulphate was administered every two hours until the pulse became regular, or half a drachm had been received. By this plan the pulse speed was reduced by the digitalis as a preliminary, and the regular rhythm was restored by the quinidine with the minimum waste of time. Cases treated in this way had given results just as satisfactory as with the more prolonged method, with the additional advantage of a considerably curtailed period of physical discomfort.

Dr. B. H. Pain (Southborough) referred to the problems that cases of cardiac irregularity presented in general practice.

Dr. F. G. Thomson (Bath) disagreed with Dr. Tyson in his view that graphic methods were of no great value in general practice; on the contrary, they gave valuable information about the condition of the heart muscle. He asked for more information with regard to the dangers of quinidine; embolism was not infrequent in the ordinary course of cases of mitral disease: was it more frequent in cases treated with quinidine?

Dr. R. A. Veale (Leeds) protested against the habit of labelling patients as V.D.H. and D.A.H. He thought that no irregularity that had not been detected by the patient should be revealed. He pointed out that auricular fibrillation did not occur in malignant endocarditis, and asked for an explanation.

Lieut.-Colonel Longhurst asked whether anyone had had any experience of the use of convallaria, which was used by Russian doctors to the exclusion of digitalis.

Professor Hall said that the discussion had been interesting for the way in which it had brought together the point of view of the scientific man working from the scientific standpoint, and of the clinical man with the practical experience of the general practitioner. It was the duty of a pendulum to swing. Early in the last century the sounds of the heart were attracting so much attention that the pendulum tended to swing too far in their direction; now perhaps it was swinging in the other direction. Mistakes had been made in the things that were said to patients, but the man in practice must say something, and many things had to be considered in settling what was the right thing to say. The term "weak" heart was to be avoided; there was no "weak" pulse that meant anything as regards the heart.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

T. Grainger Stewart, M.D., F.R.C.P., President.

DISCUSSION ON CERTIFICATION IN MENTAL DISORDERS FROM THE MEDICAL AND SOCIAL ASPECTS.

OPENING PAPERS.

I.—HENRY YELLOWLEES, O.B.E., M.D., F.R.F.P.S.G., M.R.C.P.Edin., D.P.M.,

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I feel it an honour to have been asked to open this discussion. Although I was largely concerned in the choice of the subject with which we are to deal, I will confess at once that it is one which is quite unusually difficult to review wisely or to discuss profitably. It is, nevertheless, one towards which a remarkable amount of medical and public attention is being directed at present, and I hope that a discussion of some of the practical points connected with it may prove interesting and perhaps helpful here and there.

The title of our discussion would seem to imply that the medical and social aspects of this question of certification can be readily differentiated and separately discussed. This is very far from being the case, if the social aspect means or includes the legal one, which, of course, it must. For our present purpose it will be most convenient to start at the beginning of this matter of certification from a medical point of view, and to observe how soon and how repeatedly we come to close quarters with social and legal considerations.

Let us begin, then, with the statutory certificate, and go directly to the essence of it, which is the practitioner's statement of his conclusion that the patient is "a person of unsound mind and a proper person to be taken charge of and detained under care and treatment." You observe that the patient's medical and social aspects are put together in this prescribed form of words, and the one certificate has to cover both. The patient is "of unsound mind," *and* he is "a proper person to be taken charge of and detained," and he cannot be one without the other.

Now it is very easy to imagine a person who is distinctly of unsound mind and yet by no means necessarily "a proper person to be detained." Is the form of certificate faulty inasmuch as it makes no provision for such? "By no means," you say. "Such persons do not require to be

certified." Exactly. The certificate, then, deals essentially with the patient's social relations rather than with his medical state. It is primarily concerned with his fitness for detention, and not with unsoundness of mind. The Lunacy Act is only interested in mental disease if and when it renders a patient fit for detention. I do not mention this to condemn it, but because it has an all-important bearing on the course the practitioner must adopt when writing a certificate. Before proceeding, however, we must look at the word "detained," whose acquaintance we have just made. Derivatives of the verb "to detain" hold unquestioned pride of place in the Act of 1890, and are usually fittingly mated therein with the companion word "lunatic." Most intelligent physicians, and especially those interested in the study of mind and its disorders, abandoned the use of this latter word about the time when they discarded the bow and arrow in favour of the arquebus, and ceased to accept the evil eye as the exciting cause of "windy spasms." It still flourishes, however, in courts of law, in the Lunacy Act, in certain sections of the lay press, and, for an interesting though hardly creditable reason, among those self-appointed "reformers," who, like the House of Lords, "represent nobody but themselves and enjoy the entire confidence of their constituents." We need only say that the word, and those who use it, might be placed, with advantage to the general community, on a certain "little list" of which we have all heard.

To return to the word "detention," it is clear enough, without going into fine shades of meaning, that it signifies a keeping against the will, an interference with personal liberty. Here, again, you will notice that there is no glimmering of the idea that a person of unsound mind might conceivably be not only willing, but anxious, to stay under care and treatment. There is no consideration given here to the fact (and it is a fact) that a considerable majority of certified patients are not "detained"—"behind the shut door," if I may borrow a journalistic catchword from the editor of the *Spectator*—but remain behind the open one, because they are unable or unwilling to go beyond it.

All this boils down to the fact that while the insane man may be a sick patient to be cared for, the law is very much more concerned with him as a man who is—if we may put its phraseology into plain words—to be deprived of liberty because he is moonstruck.

Now it is but just to say that all this is not quite so inexcusably and hopelessly wrongheaded as it seems at first sight—for which small consolation we do well to be thankful. It is bad, shockingly bad, but one can see glimmerings of the reasons that prompted it. The chief one of them is that there was one dominating idea in the minds of those who drew up the Act, and that was the safeguarding of the liberty of the individual.

Now this is a great and noble thing, and it would ill become us to speak lightly of any measures framed to protect it. There is no need to remind the average Englishman of his debt to those of his race who have gained for him the liberty he enjoys to-day, or of how precious a possession it is. It must be said, nevertheless, that "lunacy" legislation is so utterly obsessed with this idea of safeguarding personal liberty that it ignores almost completely the facts that the insane are ill, that their illness often prevents them knowing what is best for them, and that the opinion most likely to be of value on the point would, in all probability, be that of a competent medical man. The reasons for this are hardly relevant and would involve us in a study of the history of the Act, but they are connected with the state of public feeling at the time it was drafted, the personnel of those charged with drafting it, and the condition of things in asylums at the time.

We must now consider what happens when the medical man has stated his conclusion that a given person is moonstruck and should be deprived of liberty. The oft-repeated statement that the liberty of every individual in the country is in the hands of any couple of medical men is, of course, absurdly and grotesquely untrue; but if it were so, I imagine that the public would be, to say the least, no less safe than they are at present.

A petition and statement are, as you all know, filled up by the responsible relative of the patient. The latter, by the way, is invariably referred to at this stage of the proceedings as "the alleged lunatic." This petition, along with the medical certificates, is then presented to a county court judge, a specially appointed justice of the peace, or a magistrate, any of whom has power to make out an order for the patient's reception.

This is by a very long way the worst and weakest part of the whole business of certification. The number of reception orders signed by county court judges is probably negligible compared with the number signed by magistrates and specially appointed justices. That these latter ladies and gentlemen bring to this important and difficult duty a sincere desire for the public good, much discretion, and the most absolute integrity, is questioned by nobody (except, of course, the "reformers" previously alluded to). My complaint against them is simply that they are as a rule quite ignorant of the detailed requirements of the law which they are called upon to administer.

Many of you will be familiar with the results which follow this sad fact. I know of reception orders having been signed in cases in which one or both of the medical certificates were missing, in a case in which the petition was addressed to myself instead of to the magistrate, and in a case where the petition had been omitted altogether! After such instances it seems almost an anticlimax to tell of a case in which one of the medical certificates was, by some strange lapse, dated November instead of June, of one in which the petition and certificates were dated as having been presented the day *after* the order had been made, or of one in which the magistrate offered to sign a blank reception order form without having seen any papers at all!

All these instances are true, and the patients arrive every week with similar glaring irregularities in their papers, but with the order, which is the legal authority for their reception, duly signed. Now, in the strict sense, this may be said to be illegal detention, or, more properly, illegal or irregular admission, and you will notice that it is an entirely different thing from what is implied by that catchphrase as used by the "reformers." I will say, however, that not in one case in ten thousand is there "illegality" of any other type, and the public neglect of this really serious matter is a perfect instance of the pastime known as "barking up the wrong tree."

Irregularities such as those referred to have, of course, to be rectified at once, and every jot and tittle of the law fulfilled. This difficult, worrying, and singularly unpleasant duty falls—and I hope you appreciate the irony of the point—upon those unfortunate and lawless persons, the Board of Control and the medical superintendent concerned.

We hear much about "the system," and are told that medical superintendents are part of it, and that its distorting and besotting influence, acting upon their natural ignorance and prejudice, unfits them even to offer an intelligent opinion where the welfare of the insane is concerned. Let us at least put it to their credit that much of their time is spent in helping to administer the law as it stands, and in correcting the errors, even though they be but technical ones, of those who surely ought to be (but never are) regarded as the very keystone of "the system," whatever—if anything—that expression may mean.

We have now to return to the certificate from the certifying physician's point of view, and we notice it consists, or should consist, of a statement of facts upon which he bases his opinion that a patient is of unsound mind. The law is not satisfied with a mere statement of the medical man's conclusions (a fact, by the way, which is not generally appreciated); it insists that he shall set forth "facts indicating insanity." Facts personally observed at the time of examination must be included, and facts communicated by others may also be added. The doctor, therefore, is not made the sole judge of the patient's insanity. While recording his opinion, he must place the observed facts on which it rests before the representative of the law, who has every right to draw a different conclusion from them if he feels so disposed. The person who has to satisfy himself that the doctor's opinion is well founded is the magistrate or justice, who, as we have seen,

is a lay person with almost invariably no knowledge of medicine, and not infrequently only a very indifferent one of the law.

We may profitably digress here to notice what I regard as the crucial difference between the procedure in England and that in Scotland. Each country has, as you know, its own Lunacy Act, and, as regards ease of working, welfare of the individual, and general convenience, there is no room for question as to which is the better of the two. The English law is hedged around with safeguards, but many of them have a sadly boomerang-like tendency, and bear hardly upon those for whose benefit they were introduced. The Scottish law is, very characteristically, administered more with regard to equity than to legal punctilios, and it has far fewer safeguards; but those it has are cast-iron ones and are in the right place. One of the chief ones has to do with the point under discussion. In Scotland the petition and certificates are laid before the sheriff, who is the authority who issues the order or warrant for the patient's detention. Now the sheriff is a trained (and salaried) legal official, high and lifted up, and has a short and effective way of dealing with undated petitions, loosely worded statements, and doubtful certificates. He simply refuses to sign the order. The papers are returned to the person who presented them, and—sometimes—an indication is given as to where the weakness lies. No exceptions are made, and discussion is not invited on the subject. Generally speaking, it may be said that, once the sheriff has issued his warrant, the papers on which he did so could stand inspection, down to the dotting of the i's, by the House of Lords itself.

That is a digression, but it is one of the explanations of the comparative immunity from legal trouble in mental work in Scotland. I can hardly think of a case in which papers were returned by the Scottish Board of Control as being out of order, after the warrant had been obtained; whereas, in England, I should say that many superintendents would count themselves happy if a month passed without such an occurrence.

To return to the certificate. We see from the foregoing that its main object must be to convince a layman that a given patient is insane in the legal sense—that is to say, a proper person for detention. Now, with that main object clearly in mind, how can the certificate be most wisely framed? I am sorry to say that one answer, and one answer only, leaps to the mind, in the first instance. The Jews of old, we read, asked for a sign, but never did Jew ask for a sign so persistently and eagerly as laymen and lawyers demand "a delusion." "Has he got delusions?" is their one cry. "Give us delusions," they say, "or we perish; or at least your certificate does." I am not prepared to deny that a delusion, properly so called, is no doubt *prima facie* evidence of insanity, but probably the saddest thing in all mental work is the apparent impossibility of convincing the lay mind that the importance of a delusion may vary to an almost infinite extent in different cases. On the one hand, a delusion may be of the most trifling significance, while, on the other, it may be the very centre and essence of the whole case. All this, unfortunately, is a closed book to the average lay mind, and, in particular, to the average legal one. One waits with hope, long deferred, for some medical witness who has the courage, and is given the opportunity, to explain the matter, when asked absurd questions about delusions in a court of law.

The extravagant, rambling statements of simple mania, the disjointed proclamations of dementia praecox, the depressed forebodings of melancholia, the grandiose ideas of general paralysis, the incoherencies of hallucinatory confusion, and the perverted reasoning and false conclusions of paranoia, are lumped in an ignominious equality as "delusions," and that is the end of the matter. From a medical and scientific point of view, of course, the thing is almost too hopeless to talk about—but there it is. After all, one can see and appreciate here, as in other connexions, something of the legal view, if one tries hard. That John Smith said, "I am a white rabbit," is a good, practical sort of statement which can be put in evidence and cannot be argued about. It suffices for the purposes of the law, and avoids any necessity for bickering with mental specialists over matters of opinion and conjecture and surmise. What the particular state of John Smith's mind was when he made that statement; what particular brain illness, if any, he is suffering from; or, indeed, why he ever made the statement at all, are matters about which the law is not disposed to worry; and why should it?

None the less I believe that we are doing a poor service to our professional and scientific consciences if we set out to make our certificate what I have heard described as a really "fruity" one—full of all manner of "delusions," and yielding its fruit every sentence. The great, and in fact the only practical, test of insanity for the purpose of certificates is, of course, conduct; and the aim of every certificate should be to give a simple, but definite, picture of abnormal conduct on the part of the patient. That is the first essential, and the more clearly that your picture can also show this abnormal conduct to be due to illness, so much the better for your medical self-respect. Now, as regards drawing the picture, some of us will tend to fine line work, with an abundance of detail; while others will tend to go in for general impressions or sketchy outlines. Those who can steer a middle course are the few—the very few—who can write good medical certificates. Why this should be such a difficult art I do not really know. I have often thought that the attitude of distaste, not to say fear and trembling, in which many of us approach the duty has a good deal to do with it, and that such an attitude is very rarely justified. The duty falls into three parts. The first consists of a careful and conscientious examination of the patient; the second of asking and answering the question, "Do I consider this person to be unsound in mind, and, if so, why?" and the third of expressing your reasons (provided you do consider the patient to be of unsound mind) in words which will convey a clear picture to a lay person, and cause him to share your conviction. The more carefully the first two parts of the duty are discharged the easier will the third part be.

This is not the occasion to discuss with you the cruder and more glaring errors in framing certificates into which many of us have fallen at one time or another. Most alienists have a stock of illustrations of these, with which to embellish their after-dinner speeches, and I am no exception, but it would be out of place to retail them here. Errors are pretty equally divided, in my experience, between the mistake of giving too little detail, which produces a vague and unconvincing certificate, and that of giving too much, which produces a verbose and confusing one. "He is queer in behaviour" is as bad at the one extreme as is the following at the other: "After shaking hands, I said, 'What day of the week is it?' He refused to answer at first, but after persuasion said, very slowly, 'Tuesday morning,' the same being untrue, as it was Wednesday afternoon."

No rules for guidance can be given. The best general principle, in my view, is to state the outstanding aspects of the patient's mental condition in a fairly general way, and after such statements give illustrations or examples from the patient's detailed symptoms. Each case, however, is a law unto itself, and I hardly think you would desire that we should discuss the details of this part of our subject. I pass, therefore, to the consideration of the social and legal disabilities consequent upon certification, apart from the actual loss of personal liberty.

I repeat here, though without any great hope of being believed, that only a comparatively small proportion of certified patients regard as a distinct grievance the amount of restriction of personal liberty which is necessary. This amount, by the way, is infinitely less than the public imagine, and is far from being the greatest hardship suffered by the patient. The others may be briefly summarized by saying that a certified patient forfeits practically all his ordinary social and legal privileges, with the solitary exception that if he makes a will it is not necessarily invalid. Most of these are returned to him if and when he is discharged "recovered," while others—such as permission to visit America—are lost to him for ever. While certified, his signature is useless on a legal document of any description, except a will, and many of us are familiar with the difficulty and confusion which result and persist until the tedious and expensive process of

appointing a receiver has been gone through. No doubt a strict application of the law is the only absolute safeguard against abuses and scandals in this difficult matter, but a little elasticity, such as the accepting of the signature of an intelligent patient on a cheque, dividend warrant, or power of attorney, in cases where all the parties are known, and fraud is out of the question, would save a great deal of hardship and expense in a vast number of instances.

Let us glance, in conclusion, at the way in which the public generally regard certification. There is no doubt that the present Lunacy Act, the general ignorance concerning mental hospitals, and the grave disabilities under which certified patients labour, have combined to give the public, and many medical men, an intense aversion to the whole proceeding, which they regard as putting an ineradicable stigma upon the patient. A majority of persons view it with an unreasoning terror and disgust, and will go to practically any lengths to avoid it.

The chief cause among those named is undoubtedly the present Lunacy Act. A full, critical discussion of it seems hardly within the scope of our title, so I have merely mentioned a few points which are intimately concerned with the process of certification. While writing this paper, however, I accidentally came across the most acute and scathing criticism of the Act I have ever read, in a twenty-year-old number of the *Journal of Mental Science*, and I cannot forbear to quote two paragraphs:

"The liberty of the subject bogey should be relegated to a legal limbo, and lunacy legislation should be based not on panic and prejudice, but on common sense and justice.

"The lunacy law wants reform on many points, but first it is necessary to persuade those concerned in legislation that the medical profession is not in a conspiracy to shut up all the community in asylums, but, on the contrary, is really desirous of doing good to the insane; that the insane are not criminals, but sick persons needing the most careful, skilful, and tender treatment, especially in the early stages of the disease."

The article then proceeds to deal with the treatment of incipient insanity, and touches upon the last point I propose to take up. At present, by Section 315 of the Act, any person who independently undertakes, for payment, the charge of an invalid against whom mental disorder can be even alleged, is guilty of a misdemeanour. According to the law, if such a one can be certified he *must* be, and he may not be treated except as a patient of an asylum, registered hospital, or licensed house. Taking this fact along with the public feeling regarding certification, it is obvious that the care of early cases—an extremely difficult problem in itself—is a hopelessly insoluble one in England to-day.

Bad laws are badly obeyed, and the foregoing provision is no exception. "Anything rather than certification," being the cry of the public, and the law being what it is, we have, to our shame, many a case of definite mental disorder undergoing "treatment," so called, in a "nursing home," by "a nerve specialist," who, whatever his qualifications, lacks the essential one of practical acquaintance with the insane. Thus the very people for whom exists the modern mental hospital, with its facilities for treatment and its trained staff, are kept out of it.

Real borderland cases are a different matter, but, candidly, I fear that the public is being misled on the subject. Let it be said quite clearly that, generally speaking, a true borderland case does not become insane, a mild or incipient case is by no means necessarily a curable one, and the acute, recent, recoverable cases are, on the whole, far more abnormal in conduct and require far more specially skilled hospital care than the permanently and hopelessly insane. Unfortunately, the very opposite views to the above, and many more fallacious ones, are held by, and are being taught to, the general public. To quote once more:

"Uncertified care may be the best or the worst form of treatment and may bring either salvation or utter ruin to the patient. Ignorance may be worse than cruelty, and the incipiently insane person who is well-fed, well-clad, and tenderly neglected in the nursing home bed or the genteel back-parlour until hope of recovery is lost, is really subjected to the most grievous neglect."

I have left much unsaid, and I have refrained from constructive criticism and suggestions. I have thought it right in this opening paper merely to put before you some of the most striking points for thought and discussion which our title suggests.

In a way I deplore the fact that no direct scientific or clinical interest is attached to this discussion, but the glory of our specialty is its wide scope, and we can at least justify the inclusion of this aspect of it by its intense social interest and importance, and its practical bearing on the welfare of the insane.

II.—G. W. B. JAMES, *M.C.*, M.D.Lond., D.P.M.Lond.,
Resident Physician, Moorcroft House.

When the general practitioner is confronted with a case of mental disorder he has a threefold task to perform. He has to decide whether the patient is of unsound mind, and, if so, whether he should be certified. If he decides that certification is necessary he has generally to overcome the family resistance to the advice he gives. I should like to suggest a few clinical points which may be usefully borne in mind when the step of certification is in question.

In the first place, what degree of insight has the patient into his own condition? Does he realize that he is ill? This is always an important consideration, for with a fair degree of insight it may be possible to avoid certification, and have the patient, if he be of the private class, admitted as a voluntary boarder. Many such patients are still certified, though willing and even anxious to submit to suitable treatment, care, and control. After insight comes the question of suicide. Where a patient shows any evidence of being actively suicidal, certification is the wisest course. Suicidal impulses occur in many depressed states, and it is well to remember that early cases of dementia praecox, especially young subjects whose school life has been unusually brilliant, are often liable to sudden, impulsive suicidal attempts, though there may be no apparent evidence discovered during examination. There is the difficult case, which turns up from time to time, which is actively suicidal but not certifiable. I mention this class of case because it would be instructive to learn the opinion of this Section concerning it. I believe it is impossible as a general rule to certify a patient who intends to commit suicide unless there is other evidence of disorder of mind. Next comes the question of danger to others. Here there are some useful clinical signposts, not infrequently overlooked. Ideas of persecution may or may not result in criminal conduct, but they are danger signals. Many men live comparatively normal lives with vague ideas of persecution. But the patient who discloses a firmly crystallized belief that he is being persecuted by one specific individual is a danger. Most paranoid patients give us, clinically, warning of the approach of antisocial conduct by writing to the police or some public person, either for protection or to lay information against their supposed persecutors. Persecutory ideas occur in many states—paranoia, dementia praecox, chronic alcoholism, epilepsy, and senile dementia being the most common. The number of criminal assaults committed by senile dements with persecutory notions is surprising. There is one form of these ideas of reference to which I would draw your special attention. I refer to marital suspicions. They occur in chronic alcoholic and senile disorders, are generally directed against the chastity of the partner in marriage, and are a certain menace to the safety of the family and the public.

I pass over the more acute states of excitement, confusion, and depression, where the state of the patient is obvious, and where certification is easy. Many of these acute states are very transient, but I suggest that the best place for their effective treatment is a mental hospital, and that with increased access to and knowledge of these hospitals the public will adopt a changed attitude to institutions for mental illness, and lose to a large extent its hatred of the admittedly unpleasant and cumbersome legal machinery at present associated with admission for treatment.

With these few clinical suggestions I leave the practitioner, and propose to bring before you for discussion two of the difficulties of the physician in charge of a mental hospital. The first deals with treatment.

Having been duly certified as a person of unsound mind and a proper person to be placed under care, it is a

surprising paradox to find our patient legally quite able to refuse the treatment which is deemed necessary by competent and expert medical men.

Take the case of a successful and able business man, aged 40 years, admitted in a state of confusion. Examination suggests cerebral syphilis, with the prospect of excellent results from energetic antisyphilitic treatment. The gentleman, who has been making a sad mess of his business affairs for some weeks, stoutly refuses lumbar puncture, refuses the administration of salvarsan, and struggles violently if mercurial inunction be attempted. What is the right course to pursue? Such difficulties are, of course, generally overcome in one way or another, but no medical man is adequately protected against the possible consequences of forcing treatment upon a patient against his express wishes, however insane he may be. It seems reasonable, in a case where treatment is urgently necessary, and the friends of the patient are in complete agreement with the expert opinion advising the treatment, that the patient's opposition should be overruled, and that the medical men carrying out the necessary technique should be securely protected against any possible legal action that might be taken by the patient.

The second difficulty to which I should like to draw your attention applies especially to those hospitals where patients are taken for payment. A patient, as you know, is detained by virtue of the judicial order, made by a specially appointed judicial authority and known as the "reception order." This remains in force for a year, and must then be renewed by a special report and certificate, given by the medical officer of the hospital in which the patient is detained. For all practical purposes this is a renewal of the judicial order, and a recertification of the patient. It throws a heavy responsibility on the shoulders of the medical man, one which I venture to suggest is disliked, and is certainly not wanted, and does much to disturb the relationship between a doctor and his patient. In contrast to the Lunacy Act at present in force the Mental Deficiency Act of 1913 adopts a very different procedure, and persons detained under this Act are seen at stated intervals by an independent practitioner and two visitors, usually justices of the peace, who decide between them as to the continuation of the order. Thus the medical officer of an institution where patients are received for payment has no part in the continuation of detention orders under this Act.

One of the most striking aspects of the whole subject of the care of the insane is the violent public feeling excited by any discussion of the subject. This will always be the case, whatever Lunacy Act may be in force. Disorder of mind is still a profound mystery to the great mass of the public. It is in some ways comparable to the mystery of death. Think of the many defences erected by the community against the deep and instinctive fear of death. There are thousands of normal persons who will not pass a cemetery on a dark night. There is scarcely a village in Europe that is not erecting its magic stone emblem of propitiation to the spirits of those who died in the great war. Our patients touch similar deep and instinctive sources of feeling. One could recount at length the superstitions that have from time to time satisfied the public mind in its search for the cause of insanity. In this country a mental patient is still officially and legally described as "moonstruck." We are all familiar with the panic caused by the rumour of an escape from the local mental hospital. Comparatively few years ago insane persons were treated with unbelievable cruelty, and that, let it be remembered, with full public approval. In London itself a visit to Bedlam was a popular form of post-prandial amusement.

The community instinctively dislikes any departure from the normal, and naturally persecutes its mentally afflicted, its criminals, and its scientific and social reformers. The happier lot of our patients to-day is due to the efforts of our own profession. But the public is still convinced that ill treatment is the natural treatment, and projects this conviction on to those of us who are engaged in this branch of medicine, believing eagerly the worst that is said of our work. Even legal luminaries regard "incarceration" in a mental hospital as the greatest of human ills, browbeat medical witnesses in court, and refer persistently to our nurses as "keepers." Our subject to-day is assuming a fresh importance in view of the recently appointed Royal Commission. It must be the aim of all doctors, both special and general, to evolve clear-cut and constructive criticism of existing law.

GENERAL DISCUSSION.

Dr. J. H. Thornley (Scarborough) said that he desired to thank the President and the officials of the Section for the compliment they paid him in asking him as a mere general practitioner to take part in the discussion on certification in mental disorders, and he felt some diffidence in following upon the able and logical opening by so pronounced an expert on mental diseases as Dr. Yellowlees, but he hoped the Section would bear with him in his attempt to put forward some of the difficulties in this grave matter from the general practitioner's standpoint. He wished it to be understood that he held no brief for practitioners as a whole, but was merely speaking as one of them.

In the first place, although he considered that there was no reason to suppose that the trust reposed in medical practitioners and justices of the peace was abused by any negligence, yet the powers which the law conferred upon them were very serious, and the onus on the general practitioner was more than should justifiably be thrust upon him. Although he agreed to a great extent with Dr. Yellowlees that the oft-repeated statement, that the personal liberty of any individual was in the hands of a couple of medical men, was absurd, yet it was quite conceivable that the "facts indicating insanity"—expressing the opinion of two medical practitioners who were possibly of very limited experience—and the order signed by a justice of the peace whose medical knowledge was *nil*, and whose knowledge of the law was often decidedly limited, but who was rightly guided by the doctors' advice, were the means of legally depriving an individual of his liberty, and of attaching to him that stigma which—whatever we knew to the contrary—was still undoubtedly fixed upon him in the minds of the general public. Dr. Yellowlees had told them that in Scotland—and they had yet a good deal to learn from Scotland—a highly placed official, the sheriff, acted in the place of the justice of the peace in England, and satisfied himself that the legal requisites were correct, even to the dotting of the i's and the crossing of the t's; how much more so was it necessary that a highly placed mental expert, recognized and paid by the State, should sign and endorse a certificate justifying the medical opinion that the patient was of unsound mind, and a fit and proper person to be detained as a lunatic. This, he thought, would go a long way towards relieving the onus on a general practitioner, and convincing the relatives of the patient that by signing the petition and statement they were doing the right and proper thing. He was convinced that a patient, whether rich or poor, should have the benefit of the advice and experience of a mental expert—appointed by the State—who should be (if certification was decided upon) the signatory of one of the certificates.

They did not seem to be in the same position with regard to mental diseases as they were with regard to other medical and surgical cases, where they had the voluntary hospitals, staffed by the best medical and surgical men in the district, and where assistance in difficult cases was readily and willingly obtained; even in doubtful infectious cases they always had the medical officer of health ready to give the benefit of his expert opinion and advice. With the exception of the large centres, there were no mental clinics where experts in mental disease could easily be obtained for advice and consultation. There were many medical men whose opinion might be perfectly sound, but who had not the aptitude for putting into correct phraseology the "facts indicating insanity observed by themselves," and it was a question whether the filling up of certificates was sufficiently taught at the medical schools. Dr. Yellowlees had told them how the layman and lawyer cry out for a delusion—but Dr. Thornley considered that they were not the only ones who did so. What a sense of relief it gave to be told by a colleague, when called in consultation with a view to certification, that the patient had a

definite delusion. Other conditions which worried general practitioners were those states of mental depression from innumerable causes—such as neurasthenia, brain fatigue, and financial, business, or domestic worries—when the patient saw his doctor, told him that he was "fed up" and felt so bad at times that he would like to "end it all," or that he was afraid lest he should lose complete control of himself and damage other people or take his own life. These remarks were often made with a view to creating a sympathetic attitude on the part of the doctor and to impress him with the fact of how really ill the patient felt. Although they might treat such remarks lightly, yet there was the lingering fear of a tragedy, the publicity of an inquest with the usual verdict of "temporary insanity," and the consequent damaging criticism of the medical attendant for not having realized the seriousness of the patient's condition.

With reference to that group of cases including the insanity of toxaemias from acute infective disorders, traumatism, and the effects of drugs, alcohol, etc., were they justified in certifying such cases? They had to consider the benefit of the patient, who required skilled mental nursing and treatment under the best conditions, only obtainable in the best mental institutions; the undoubted slur which was absurdly but assuredly cast on anyone who had been confined in a mental hospital, together with the fact that the patient, if not in the acute stage, was certainly associated in the convalescent stages with other patients of a permanent type, such as those with dementia. General practitioners were, therefore, divided in their opinion by the distinct benefits on the one hand, and the unfortunate social aspects on the other. With regard to those difficult "borderland" cases where skilled observation was so essential, Dr. Thornley considered that some method should be devised by which such patients could be temporarily detained. This detention would automatically cease within a prescribed period, and thus give time for observation and reflection before a definite opinion was given. He was sure that mental experts would be the first to admit the extreme difficulty in distinguishing the graver forms of neurasthenia and marked cases of eccentricity from some cases of insanity. The general practitioner, the mental expert, the nursing home, or whoever was taking charge of the patient, would, however, need to be adequately protected against legal action.

Dr. Thornley summarized the difficulties and suggestions, which he had attempted to put forward, as follows:

1. To lay the wraith of the "liberty of the subject" bogy by bringing in the aid of a trained alienist—a State official—to lift the burden from the shoulders of the general practitioner.
2. The education of the general public to realize that insanity was a malady and not a social stigma.
3. To obtain the aid of a highly placed legal official who would supervise the case and satisfy himself that the documents, etc., conformed to the law.
4. The need for a more practical experience and instruction in the expression of the facts upon which the medical man's opinion was based, and to strike the happy medium between a too scanty, and what Dr. Yellowlees had called a "too fruity," certificate.
5. The fact that a delusion was so variable in its importance; although an obvious fact indicating insanity, yet it alone might not be a fact justifying certification.
6. The constant fear of suicide.
7. The justification or otherwise of certifying in cases of insanity of toxaemias, trauma, etc., when there was every reason to believe the cure would be speedy.
8. The necessity of some very modified form of temporary detention for reflection and observation.

Dr. J. I. Russell (North Riding Mental Hospital) said that in the present form of certificate legal and social considerations almost completely overshadowed the medical aspect of the case. The primary object of the certificate was to procure the patient's detention: the question of treatment of his illness was rarely given a thought. Neither the friends nor the doctor of the patient ever thought of sending him to a mental hospital until his conduct had made him intolerable at home. From the legal point of view this was quite right, but he felt certain that it was to a large extent responsible for the vague fear and horror with which the man in the street viewed the subject of mental disease. Dr. Russell asked if they themselves were not encouraging this view. They were joining in the popular cry—"At all costs save the incipient from certification," and to this end it was proposed that cases should be treated in general hospitals, often poorly equipped for this type of case—hospitals without verandahs and without gardens, and situated, perhaps, amidst the noisy traffic of the city. He feared that this policy would only increase the stigma which was so unfortunately associated with the mental hospital, and he felt that it would be wiser to fight for the elevation of the mental hospital to popular favour, rather than to encourage a retrogressive movement which threatened to convert mental hospitals into homes for incurables. Dr. Russell believed that such a fight was possible, but not with the present form of certificate, and he suggested that the greatest good would result from the adoption of a medical certificate which would admit a patient to a mental hospital and there detain him for a limited period—three months if necessary—in much the same way that patients were detained in hospitals for infectious diseases. At the end of this period, if not previously discharged recovered, the patient would either return home or a reception order would be prepared. By this means he believed that cases would be received earlier, the stat the mental hospital would be raised, and the suicide of incipient and recoverable melancholics would be prevented.

Dr. Russell then entered a plea for the rate-aided patient, considering that it was neither just nor reasonable that the certification of a poor man should be so much easier than that of a man of means. Whatever purpose might be intended it was surely not achieved, since any patient, however affluent, might be admitted as a pauper and, without further certificate, be transferred to the private class, after which he remained as a private patient with but one medical certificate and without petition. He considered that the same procedure should apply to private and rate-aided cases. The poor patient had another grievance: it was not an uncommon practice to remove him to a union hospital, ostensibly for treatment of his malady, but in fact merely to facilitate his transfer to a mental hospital; his certification and admission were arranged without either consulting or informing his friends. Moreover, the petitioner of a private patient might at any time order his discharge, whereas the relatives of the rate-aided case had no such right. It seemed unfair to deny to the next of kin of a rate-aided patient the rights and privileges enjoyed by the petitioner of a private patient.

Dr. Stanford Read (London) regarded insanity as really a legal term involving the necessity for control; insanity was to be distinguished from mental unsoundness. In the minds of most medical men, however, the terms were largely synonymous. The result was that the idea of commitment to an institution went hand in hand with mental disease. In certification, the "facts indicating insanity" were highly debatable, and thus a medical man with practically no knowledge of psychopathology might commit a patient whose condition required no such step. Thus, such symptoms as depression or suicidal ideas might be taken at an incorrect value. It would be ideal, therefore, as Dr. Thornley had said, to have in every local area an expert in mental diseases who would be either entirely responsible for certification or be a co-signatory with the medical practitioner. It would also be ideal if every mental case could be first placed in an observation hospital prior to certification. The stigma attached to insanity was deeply rooted, and was only helped by the medical world speaking of "nervous breakdowns" when the word "mental" should be used. The public should be educated and familiarized with all the factors of mental hygiene; only in this way would the stigma gradually be removed. In Gheel, in Belgium, where over a thousand certified insane patients were housed with the population, and where they had more or less liberty—a system that had been in vogue for hundreds of years—there

had come about such a familiarity with insanity that it was viewed in a very different light from the usual one, and the factor of the stigma had sunk into insignificance.

Dr. BEDFORD PIERCE (Leeds) said that the system of "voluntary treatment" should be greatly extended. The more it was used the less would be the need for certification. In spite of many recommendations, voluntary treatment was still impossible in any public mental hospital. It was perfectly true that few miscarriages of justice occurred under lunacy procedure. He personally had never known a patient wrongfully detained, and a legal commissioner had told him that he had known of only one case, and it so happened that privately he had heard particulars of this case which showed there was room for doubt. The record of the medical profession was extraordinarily good in this respect, and they could justly be proud of it. Yet they must not be content and silently ignore criticism. It was not that they as a profession would suffer, but that there was grave danger that timely treatment of their patients would be delayed. The Harnett case disclosed a painful ignorance of mental hospital administration, and the attitude of counsel, and even the Bench, towards medical men engaged in psychiatry left much to be desired.

Dr. Bedford Pierce submitted that the procedure in respect of compulsory treatment in recent acute cases—such as acute melancholia following confinement and delirium during the course of convalescence from acute infective disease—should be different from long-standing cases. There was the case of a man suffering from depression who tried to throw himself out of a railway carriage window and was certified; he recovered in a week and found himself deprived of his post as managing director of his company, in accordance with the articles of association. Cases such as these needed skilled care upon some temporary basis without certification. He considered that certification could be deferred safely, provided (1) there was no concealment, and (2) the hospital or place of treatment was properly equipped. Privacy without concealment could be secured by a system of notification accompanied by medical statements and reports. Much had yet to be done to provide proper conditions available to all. At least three provisions appeared to be essential, and all, unfortunately, involved more expense: (1) Adequate medical service (not one doctor to 500 patients). (2) A skilled and trained nursing service. (3) Provision of gardens, occupations, interests, and the exclusion of the degraded chronic insane. If in every area suitable hospitals were provided, such could be affiliated to the general hospital, and where medical schools existed they would become centres for teaching psychiatry. A great step would thus be taken towards providing early and more effective treatment, and in reducing the need for formal certification.

Concerning the present procedure of certification, Dr. Bedford Pierce submitted the following criticisms: (1) The present magistrate's order was of little value as a safeguard. He agreed with Dr. Yellowlees that the Scottish method of a sheriff's order was better. The order should be given by a trained lawyer with a fixed address and definite hours. In case of doubt he would be authorized to call for expert assistance. Any inconvenience or danger from delay could be met by an elaboration and extension of the Urgency Order. There need be no special haste about the Reception Order; if the patient recovered before it was obtained so much the better. (2) The procedure in pauper and private cases should be the same. The fact that the patient was an artisan's wife did not justify any less care. He advocated two certificates in all cases. (3) There seemed no reason why the doctors should be obliged to see the patients separately. (4) It had been suggested by Dr. Thornley that one of the certifying doctors should be a specialist. He was doubtful, however, whether it was wise to split up the profession.

As a subject for discussion, Dr. Bedford Pierce suggested in respect to complaints of improper detention the appointment in each district of a legal referee, who would be entitled to call in expert advice and see documents. The deprivation of civil rights was a grave matter, and as a profession they should readily welcome appeal to a legal authority. Conflict would no doubt sometimes arise and patients might be recommended for discharge undesirably; on the whole, however, the burden on medical men in charge of the insane would be lessened. The scheme might work out as follows. A patient was restless and complained of his detention. It would be the duty of the medical man in charge to give the patient particulars as to how he could apply to the referee (somewhat akin to the form which was at present supplied for appeal to a magistrate). The referee would take such steps as he considered necessary to satisfy himself that the patient was rightly detained; if dissatisfied he would report to the Board of Control for decision. This would necessarily mean the decentralizing of some of the work of the Board of Control, but it would not reduce their responsibility in those cases that could not be settled locally.

In conclusion, the speaker urged the following five points: (1) The voluntary treatment of patients should be facilitated in every possible way. (2) Temporary detention without certification in recent acute cases should be permitted. (3) Effective treatment should be secured for all patients, poor as well as rich. (4) A legal referee, empowered to call in expert advice in difficult cases, should be appointed in every district. (5) Finally, the responsibility of initiating treatment necessarily thrown on the medical profession should be accompanied by effective legal protection; but every patient, if aggrieved, should have a right of appeal to a legal referee.

Dr. JOHN MILLS (Ballinasloe, co. Galway) expressed his entire agreement with the chief points of reform indicated by Dr. Bedford Pierce. He considered that the most urgent reform needed was that the class referred to by lawyers as "pauper patients" should be allowed admission, under proper safeguards, to district asylums on the same conditions as "voluntary boarders" were admitted to private institutions. He could recollect many patients with incipient insanity who had come to him asking for admission; under the present law he was compelled to refuse. Dr. Mills also desired to draw attention to the great reluctance of juries to find anybody insane, no matter how strong the evidence, and suggested that temporary detention on the certificate of an official similar to medical referees under the Ministry of Pensions would give the general public more confidence in mental hospitals.

Dr. DAVID BLAIR (Lancaster) said that it was distinctly unfair that the whole onus of certification should be thrust upon the family physician. He considered that all patients—private and rate-aided classes alike—should be certified by two medical men, one being a specially appointed mental expert and the other the patient's usual medical attendant. The importance of the medical certificate being a statement of facts, and not a mere expression of the doctor's opinion, was not sufficiently realized in practice.

Dr. C. WORSTER-DROUGHT (London) emphasized the importance of remedying the anomaly that a patient certified as of unsound mind was legally able to refuse all necessary treatment. Certification, therefore, did not imply compulsory treatment. He had seen one of the cases of cerebral syphilis to which Dr. James had referred, and entirely supported his observations. The matter could be adjusted by the insertion of a treatment clause in the medical certificate, or, if this were impracticable from the legal standpoint, issuing an additional certificate authorizing necessary treatment and protecting the physician from legal action. As regards the question of certifying a patient merely on the reiterated threat to commit suicide, Dr. Worster-Drought was of the opinion that in the majority of such cases certification was justifiable. He remembered an instance which occurred while he was engaged in neurological work in the army during the war. A recruit was admitted to hospital with the history that he had attempted to drink carbolic acid. While in the observation ward the patient repeatedly announced his resolve to commit suicide, but showed no other symptoms. He was not unduly depressed, nor did he exhibit any disorder of conduct. In due course he was certified. About four years

later, when the war was over, the patient sought out Dr. Worster-Drought, and among various threats accused him of ruining his life by causing his certification; he said that not for one moment had he ever intended to commit suicide, but that he had merely acted the part to escape military service. Some months later, however, he was again certified by other physicians, and was still in a mental hospital.

Dr. Worster-Drought considered that a defect in our social system was that between the general hospital and the county mental hospital there were no institutions to which a patient of the so-called "pauper" class could be admitted. The general hospital was not suitable for, and usually did not admit, either borderland cases or those suffering from the milder forms of insanity; there was no other course but certification. Some cases were admitted to the special hospitals for nervous diseases, but these institutions did not really desire such cases, nor were they entirely suitable. What to do with the mild and borderland cases whose means were slender and those of the hospital class was an ever-recurring problem. The position could be met only by the foundation of special institutions similar to the Maudsley Hospital, or by the admission of voluntary boarders to the county mental hospitals; the latter course, however, was not without its objections.

A COMPARISON OF THE EFFECT OF THE LONDON CLIMATE ON CAPTIVE ANIMALS AND MAN.

BY

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It had long been felt that there was some correlation between the weather and the number of deaths occurring among the animals living in the Zoological Society's Gardens, but there had never been any attempt to work out the actual figures. This was probably due to the difficulty of obtaining accurate figures of the climatic conditions prevailing in the neighbourhood of the Gardens; the figures derived from Kew naturally would not apply. However, from 1919 records have been kept at the Royal Botanic Society's Gardens, and as these are situated within half a mile of the Zoological Gardens, it would appear that these could be applied to the Zoological Gardens without introducing any serious error. I wish here to acknowledge my indebtedness to the curator, Mr. J. L. North, for the loan of all his records, which has made this analysis possible.

In view of the larger numbers of small birds kept in the Gardens, and the frequent difficulty in giving an accurate diagnosis of the cause of death, it was not justifiable to attempt to work out figures for birds. The conditions prevailing in the Reptile House also seemed to place the inhabitants somewhat outside the influence of the weather. It was resolved, therefore, that only mammalian deaths should be examined. For this purpose all deaths due to accident or the attacks of cage companions were excluded. The atmospheric conditions which appeared to have a bearing on the matter were the following:

1. Maximum temperature in the shade. The temperature in the shade was selected because all the animals have an opportunity to get into the shade should they wish it.
2. Minimum temperature of the air. This was chosen rather than minimum temperature of the grass, for the reason that in cold weather all the animals have a shelter—not necessarily heated, but enough to keep them from the extreme of ground temperature. The warming of houses would seem to introduce a fallacy in the use of external temperatures, but in most cases a change of external temperature, if of any magnitude at all, affects to some extent the level of temperature in the houses.
3. The total rainfall per month.
4. The number of days per month in which the wind blew from the quarter between the north and the east. This was included because it had been observed that the number of deaths seemed to increase when the wind was in that quarter.
5. Total sunshine per month.
6. The number of days per month on which fog occurred.
7. Percentage of moisture in the atmosphere, saturation being taken as equal to 100.
8. Total deaths per month.
9. Total deaths from pulmonary diseases other than pulmonary tuberculosis.

Further, it was felt that it would be of considerable interest to show a comparison between the deaths of the higher and lower mammals. Figures were taken from the deaths occurring in the Borough of Marylebone, excluding those due to accident or suicide. Also a chart is given here for pulmonary disease in the same area. Marylebone was chosen as being the borough in which the greater part of the Gardens is situated. For these figures I have to thank Dr. Charles Porter, B.Sc., medical officer of health for Marylebone.

A short explanation is also required of the charts themselves. The four years taken are 1920, 1921, 1922, and 1923. These are indicated by the vertical black lines. Each of the twelve black dots in the division represents a month. The numbers are totals except in the charts of humidity and temperature, when the monthly number is the mean of the daily readings for that month. The monthly figures for the four years then added together and divided by 48 give the mean for the four years, which is indicated by the horizontal black line running the length of each chart. If the charts are then placed vertically in order, with the vertical black lines corresponding, the deviations from the mean occurring in each month can be read with ease.

Turning first to the charts of total deaths in the Gardens, it is seen that the number of deaths is, as a rule, above the average in January, and then falls gradually, with a rise in June and July, after which it falls, to rise again in the late autumn. There is not, however, any great regularity. Yet it can be said that the months of August and September are the healthiest.

There is one year which is worthy of special note—namely, 1921. This was a year in which there was a remarkably fine spring, summer, and autumn. The monthly total of deaths is below the average through a larger and more unbroken period in the year than is shown in any of the other years. In fact, the only months in which the total is above the average are July, November, and December, and in November it is only just above—that is, 23 as compared to 22.5. That July, which was the hottest and sunniest month of the year, should be the month with the highest number of deaths—namely, 27—may appear remarkable, but the drought brought with it a great deal of dust and also tended to cause decomposition of food, with attendant diseases of the alimentary tract.

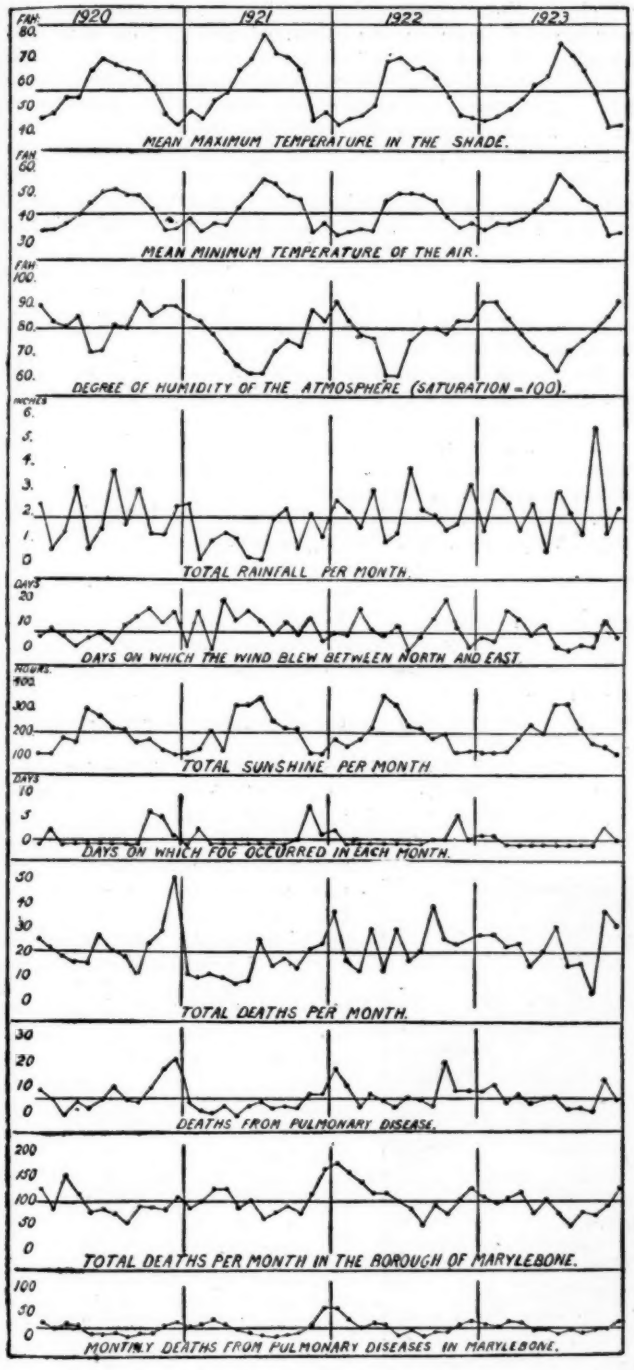
Human mortality, on the other hand, was not unusually low during 1921. The monthly total of deaths was only below the average during six months, and in December it reached a total only second to that of January, 1922, which was the following month. Another reference will be made to this later.

The pulmonary disease charts of animal and human show a much closer relationship, and both run in a more regular fashion. There is a rise in November and December which reaches its highest point in January. It falls during the spring, to remain at its lowest during June, July, August, and September. The year 1921 shows an abnormality, which is especially marked in the animal deaths. Here the monthly deaths for the first ten months of the year were all below the average, while those for November and December were only 9 for each month, the average being 7. On the other hand, the human deaths only showed five months with totals below the average.

Having pointed out that these rises and falls exist, it is now appropriate to examine the other charts and to see what deviations from the normal can be found to have existed during those months in which there was a deviation from the normal in the death totals.

Probably the first condition to occur to the mind of the investigator with regard to climate and the deaths of exotic animals is temperature. As would be expected, the two charts of maximum and minimum temperature correspond

very closely. When the mean monthly maximum drops, the minimum follows it, although there is one striking difference, which is that the deviations from normal for the maximum are far greater than those of the minimum. The former ranges from 43° to 80° F., while the latter only ranges from 35° to 58°, so that the range of the one is more than twice that of the other. The greatest deviations of minimum temperature occurred in February, 1921, and January, 1922. In February, 1921 (temperature 36°), the


1920
1921
1922
1923
MEAN MAXIMUM TEMPERATURE IN THE SHADE.
MEAN MINIMUM TEMPERATURE OF THE AIR.
DEGREE OF HUMIDITY OF THE ATMOSPHERE (SATURATION = 100).
TOTAL RAINFALL PER MONTH.
DAYS ON WHICH THE WIND BLEW BETWEEN NORTH AND EAST.
TOTAL SUNSHINE PER MONTH.
DAYS ON WHICH FOG OCCURRED IN EACH MONTH.
TOTAL DEATHS PER MONTH.
DEATHS FROM PULMONARY DISEASE.
TOTAL DEATHS PER MONTH IN THE BOROUGH OF MARYLEBONE.
MONTHLY DEATHS FROM PULMONARY DISEASES IN MARYLEBONE.

total deaths were 13—that is, 9 below the mean; while in January, 1922 (temperature 35°), the total deaths were 38—that is, 16 above the mean. The deaths from pulmonary disease were 3 below and 12 above respectively. The figures for Marylebone were exactly average—that is, 110 for February, 1921; while for January, 1922, they reached 270—that is, 160 above. The pulmonary deaths were 7 and 30 above the average in these two months.

These figures have been chosen as examples, but it can be seen from examination of the charts that the death figures and those for temperature do not correspond. It is true that in the warm summer months the deaths are fewer than in cold winter ones, but, as the example taken shows, in two months in which the average monthly minimum temperature differs only by one degree, the difference in the death totals is very marked.

There is another aspect of temperature which might easily be considered responsible for a large number of the deaths among exotic mammals: this factor is the rapid changes in temperature from day to day, the existence of which, in the English climate, is a byword. To examine this a chart was made of the daily temperatures, maximum and minimum, for two years, and beneath it a chart of the daily deaths. In spite of the fact that a drop in temperature of 10° in twenty-four hours was a by no means uncommon occurrence, the death rate seemed absolutely unaffected by such changes. In fact, the one had so little bearing on the other that there was no need to reproduce any of the charts. It is not unnatural that this should be so, when the conditions in many semi-tropical parts of the world are considered, where the fall of temperature at sunset is far greater and more rapid than it is here. It is necessary, therefore, to search elsewhere for a cause; and the next points to examine are rainfall, humidity of the atmosphere, and the direction of the wind.

It will be simplest to compare in tabular form the two months which were previously used to point out the small influence of low temperature when considered alone. These months were February, 1921, and January, 1922.

	February, 1921.	January, 1922.
Total deaths	10 below normal	16 above normal
Pulmonary deaths	5 below ,,	12 above ,,
Total human deaths	Normal	80 above ,,
Pulmonary human deaths ...	7 above normal	30 above ,,
Humidity	5% above ,,	11% above ,,
Days of wind N. to E.	7.5 above ,,	1.5 below ,,
Total rainfall	1.8 in. below ,,	0.7 in. above ,,

This is a very nearly perfect example of the importance of a reasonably dry atmosphere in health. The only point in which there is a failing is that there were fewer days of northerly and easterly winds in January, 1922, than in February, 1921, but, as will be shown later, these unfavourable winds appear only to have influence when accompanied by rain. It is interesting to note that the maximum temperature of February was only two degrees higher than that of January.

Choosing the deviations in another way, December, 1920, provided the greatest total of animal deaths during the four years, and also the greatest total of pulmonary deaths, while October, 1922, gave least in total deaths and a very small pulmonary aggregate.

	December, 1920.	October, 1922.
Total deaths	30 above normal	17 below normal
Pulmonary deaths	16 above ,,	5 below ,,
Total human deaths	10 above ,,	10 below ,,
Pulmonary human deaths ...	12 above ,,	3 below ,,
Humidity	9% above ,,	1% below ,,
Maximum temperature ...	16° below ,,	1° below ,,
Minimum temperature ...	6° below ,,	2.5° above ,,
Days of wind N. to E.	7.5 above ,,	7.5 below ,,
Rainfall	0.5 in. above ,,	3.6 in. above ,,
Sunshine	90 hrs. below ,,	40 hrs. below ,,

Contrasting these two opposites, it can be seen that in December the weather was unduly cold, and there was much northerly wind. There was only a slight excess of rain over the normal, yet the humidity was 9 per cent. above the normal. In October, a favourable month, the minimum temperature was above the normal, and the maximum only slightly below it. The days of northerly winds were as much below the average as above it in the other month, but

the total rainfall was tremendous, and the humidity 1 per cent. below the normal. This would support the argument that rain without cold winds is harmless, while the converse also applies. The human deaths correspond also, but, owing possibly to the different modes of life of acclimatized humans and unacclimatized wild animals, the difference is not so marked.

Looking at the problem from the point of view of the average number of deaths in a month, July, 1920, has been chosen as showing an exact average total of deaths, and it is notable that there is no great deviation of wind, rainfall, or humidity, and that the deviations of the two former balance each other.

July, 1920.

Total deaths	No deviation
Pulmonary deaths	4 above normal
Total human deaths	20 below
Pulmonary human deaths	5 below
Humidity	1% above
Maximum temperature	10° above
Minimum temperature	10° above
Days of wind N. to E.	5 days below
Rainfall	1.9 in. above
Sunshine	20 hours above

There are two more factors which must be considered—namely, fog and sunshine. With regard to the former, one cannot help feeling that, in Regent's Park at all events, the prevalence of fog was not really very great in these four years. There have been only forty-one days on which fog has occurred in the whole of them, and on very few of these has the fog persisted throughout the day. It is true that the number of deaths is greatest in those months in which as a rule fog occurs, but rain and north-east winds are also prevalent then, and in a much greater degree. Of much greater importance is sunshine, or rather it is to be feared the absence of it, for the daily average of sunshine is but three hours out of the twenty-four. In the winter months it is approximately one hour a day. It is unnecessary to discuss here the action of sunlight in the prevention of disease. That it plays a very important part is now generally accepted. There is, however, one point which will bear emphasizing, as being new, and that is a possible difference in the effect of sunlight on man and animals. To see this it is only necessary to look at the charts for sunshine and human and mammalian deaths for 1921. Reference has already been made to the good health of the animals during this year, but, whereas the total of deaths remained low among the animals in November and December, among the humans the total for the same months rose to a great height. In fact the number of deaths in December was the second highest recorded in the four years, the largest being that of the January following. It would appear, therefore, that the lower mammals might be capable of storing up the sunlight and using it to increase their disease-resisting powers more satisfactorily than can the human.

The period over which these statistics extend is somewhat too short for any very strong conclusions to be drawn, but they are certainly suggestive of the two following:

1. That a dry cold atmosphere is not harmful, nor is a warm moist one; but a cold damp atmosphere is most deleterious both to the higher and lower mammals.

2. That while sunshine is beneficial to both, it would apparently have a more lasting effect on the lower mammals.

REMOVAL OF PART OF A SAFETY-PIN FROM THE BRONCHUS OF A CHILD BY PERORAL BRONCHOSCOPY.

BY

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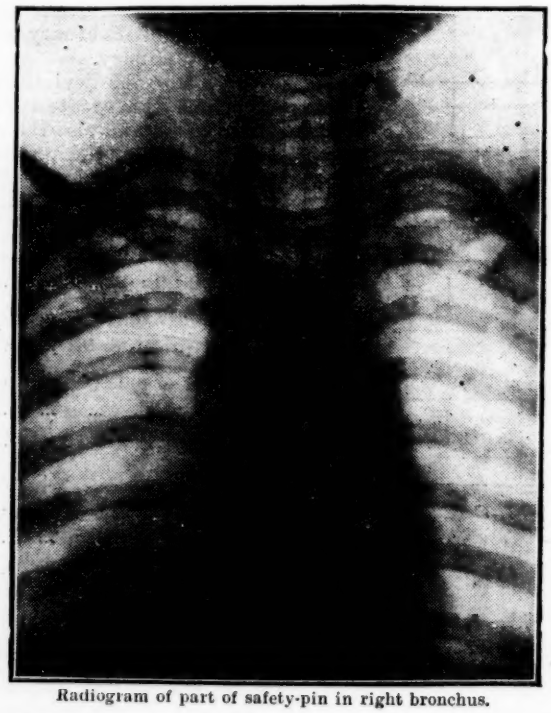
The following case illustrates the relative absence of signs and symptoms which is almost characteristic of the aspiration into the air passages of a metallic non-obstructive foreign body.

Peter C., aged 2 years and 10 months, had been playing with a damaged safety-pin on May 18th, 1924. The mother noticed that he had a slight attack of coughing lasting only a few moments, and she was unable to find part of the safety-pin. Little more was thought of the matter, for there were no further symptoms beyond a slight loss of appetite, but after three or four days a very slight cough developed, just sufficient to give the mother a little uneasiness and cause her to consult the doctor, who, even in the absence of physical signs, fortunately decided to send the child to hospital for an *x*-ray examination.

The child was admitted to the Royal Alexandra Hospital for Sick Children, Brighton, on May 24th; the honorary radiographer, Dr. Barrington Prowse, reported on the same day the presence of part of a safety-pin in the right bronchus. It was lying obliquely at the level of the second to the fifth dorsal vertebra, safety-catch downwards, and tilted one inch from the middle line; the spring and pin portion were fortunately missing.



Radiogram of part of safety-pin in right bronchus.

The child's condition was normal apart from a slight occasional cough, and the only physical sign present, and that an equivocal one, was a trace of deficient expansion on the right side.

On May 25th the child was starved of fluids for five hours and given 1/200 atropine in order to keep the bronchus as free as possible of secretion. Under chloroform anaesthesia the larynx was exposed with a laryngeal spatula through which a 5 mm. bronchoscope was passed into the trachea. The upper end of the pin, not yet blackened, was seen just above the carina, and was grasped with slender Paterson forceps. A little manipulation served to release the impaction of the safety-catch, which was caught on the junction of the upper-lobe bronchus, and the pin was then withdrawn, together with the bronchoscope, to the level of the rima glottidis, into the axis of which it was rotated, and then removed. The bronchoscope was in use for four minutes, and no post-operative oedema developed. For four days there was slight hoarseness, and the child left the hospital in a week.

An experience such as this emphasizes the need for vigilance in dealing with cases in which the presence of a foreign body is suspected, whether or not presenting symptoms, and the advisability of a radiogram in all cases. It also emphasizes the fact that peroral bronchoscopy is a satisfactory means of dealing with such cases, which should completely supplant the older method of bronchoscopy through a tracheotomy wound.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

POST-OPERATIVE THIRST.

I VENTURE to suggest the following simple means of relieving the thirst and dryness of the mouth and throat which follow abdominal operations. It consists in spraying the throat and mouth with a solution of boracic acid, gr. 10 to the ounce of water, slightly acidulated by the addition of a little lemon juice. The spray is cooling and cleansing in its action, and reaches all parts of the mouth, fauces, and pharynx, which neither gargling nor rinsing of the mouth can do without considerable exertion and practice; they are practically impossible in children. Spraying requires no exertion on the part of the patient beyond opening the mouth, and can be applied in whatever position the head may be resting. The liquid used can be made very cold by keeping the bottle on ice, or hot by placing it in a bowl of hot water. I have found the cold spray to be the most gratifying to the patient; the spray can also be used to great advantage in fevers and sore throats.

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M.R.C.P.Lond.
Aberystwyth.

TUBERCULOUS CERVICAL GLANDS.

WITH reference to the article on tuberculous cervical glands by Mr. R. Davies-Colley, C.M.G., F.R.C.S., in the JOURNAL of August 16th (p. 259), I would like to mention a method which has been used by me for the treatment of single suppurating tuberculous glands, before or even when they have involved the surrounding tissues to a slight extent, but before a sinus has been formed.

As soon as fluctuation is present in the gland the skin is sterilized and a suitably curved surgical needle carrying a stout linen thread is made to transfix the abscess. If the gland is tending to point to the surface, the site of exit is made at that spot—the points of entrance and exit being kept as far apart as possible. The ends of the coarse linen thread suture are tied in a knot so that a loose circle of thread is left passing through the gland. A dry dressing is then applied.

The contents of the abscess cavity drain out by way of the linen thread suture, and every day the loose circular suture is moved either a little forward or backward to prevent it adhering. The skin is painted with tincture of iodine once daily and dry dressings applied as required. The pus is allowed to drain out in this way till discharge ceases, when the suture is cut and withdrawn.

The main advantages of the above method, where applicable, are the ease of application and that no resultant scar is left.

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A CASE OF GENERALIZED VACCINIA.

THE case here recorded seems of sufficient interest to warrant publication.

E. W. J., a general labourer, aged 44, was admitted, as a recurrent case of melancholia, to the Kent County Mental Hospital on July 23rd, 1924. On July 29th vaccination was performed on the right arm in the region of the insertion of the deltoid. On the morning of August 4th four pale papules appeared surrounded by a reddish area, which duly became umbilicated purulent vesicles on August 6th, accompanied by considerable swelling and inflammation of the whole limb. In the evening of this (the eighth day after vaccination) a distinct vaccinia rash appeared on both arms, the temperature rose to 102°, and the patient complained of nausea and headache. By midnight the rash had spread to the whole of the body, excepting the face, and the temperature (axillary) registered 103.4°. The pulse rate was 90, and the respirations 20. No enlargement of glands could be felt. On the following morning the temperature fell to 100°, and the rash had begun to disappear; in the evening the temperature was 98.4°. There has been no further pyrexia or reappearance of the rash.

I am indebted to Dr. M. Abdy Collins, the medical superintendent, for permission to publish the notes.

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Assistant Medical Officer, Kent County Mental Hospital, Chartham Down.

LARGE OVARIAN CYST AND GALL STONES.

THIS case appears to me to be of sufficient interest and rarity to justify publication.

A married woman, aged 56, was referred to me by Dr. Rowlands, Llanaelhaiarn, on April 22nd, 1924, and was admitted to hospital on that day. She was suffering from an enormous abdominal tumour. She had noticed a gradual enlargement of the abdomen for eighteen months; it commenced on the left side; she had had swelling of the legs and feet for twelve months, and difficulty in micturition for six months. Dr. Rowlands was not consulted until Christmas, 1923, when he diagnosed ovarian cyst and advised operation, but this the patient refused. As the swelling was incapacitating her more and more, and as she had several attacks of mild abdominal pain and pressure symptoms such as dyspnoea, palpitation, and flatulence, she at last consented.

She was tall, emaciated, and pale, but free from jaundice. She complained of pain in the epigastrium radiating to the upper part of the spine, and flatulence after food, but had not had biliary colic. She had lost flesh and strength especially during the last six months. The pulse was 85, the temperature and urine normal. The abdomen appeared to be completely filled by a large oval swelling, projecting in front, but not bulging in the flanks. It was immovable, dull to percussion, and a distinct fluid thrill could be elicited. A diagnosis of cystic ovarian tumour was made.

Operation.

This was performed on April 23rd under ether anaesthesia. The abdomen was opened by a right paramedian incision, extending from the level of the ensiform cartilage to just above the pubes. The abdominal cavity contained an enormous multilocular cyst, arising from the left ovary. Extensive adhesions to the parietal peritoneum were separated and the tumour carefully delivered through the wound, and removed by dividing its pedicle distal to clamps. The pedicle, which was four inches broad, was transfixed and ligatured and the raw surface covered in by Lembert sutures.

Nothing abnormal was found in the pelvis, and the stomach, duodenum, and liver were normal, but several calculi could be felt in the gall bladder. It was removed in the usual manner; the cystic duct and artery being ligatured separately; bleeding from the raw surface of the liver was controlled by deep catgut sutures. A moderate-sized drainage tube was fixed to the stump of the cystic duct and the abdominal wound closed in layers.

Apart from transient retention of urine and distension of the abdomen, the patient made a splendid recovery; the drainage tube was removed on the sixth day and the discharge gradually ceased. She left the hospital in three weeks free from symptoms and with the wound soundly healed. In the middle of September she was about her household duties and feeling very fit.

The Tumour.—The tumour, which measured 50 inches in circumference and weighed 46 lb., was multilocular, but fully five-sixths of it was formed by a big cyst, which occupied its anterior part; it contained thin yellowish fluid; the remainder of the tumour was composed of six smaller loculi which contained mucous material.

The gall bladder was slightly enlarged; its wall was thickened and fibrotic. It contained clear mucus, and two large spherical gall stones and numerous dark brown faceted smaller stones.

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ACUTE INTUSSUSCEPTION.

WHILE I was house-surgeon to the Beckett Hospital, Barnsley, Yorkshire, a healthy looking male child, aged 5 months, was admitted with a history of diarrhoea of two days' duration and the passing of blood and mucus in the stools. The bowel was found to be prolapsed for about four inches through the anus. A large sausage-shaped mass could be palpated on the right side of the abdomen. The prolapsed bowel was easily reduced inside the rectum, but when pressure was removed it again came down, this time to a distance of about six inches owing to the continual straining of the patient.

Under general anaesthesia the abdomen was opened by an incision slightly to the right of the middle line, and the rectus muscle displaced outwards. The diagnosis of intussusception was verified, and my assistant, having reduced the bowel through the anus, pushed the apex of the intussusception up within reach of my hand inside the abdomen. Reduction was easily accomplished by pressure, some slight difficulty being experienced in the last portion owing to the oedema present. The intussusception was of the ileo-caecal variety, and the usual enlarged lymphatic gland was present at the ileo-caecal junction.

Recovery was uneventful, and the child was discharged at the end of the third week.

I have to thank Dr. Edwin Orsmond for his skilled assistance during the operation.

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Indian Station Hospital, Poona, India

Reports of Societies.

THE EVOLUTION OF NEUROLOGY AND ITS BEARING ON MEDICAL EDUCATION.

Dr. E. Farquhar Buzzard, the new President of the Section of Neurology of the Royal Society of Medicine, delivered his address from the chair on October 9th, and took for his subject "The evolution of neurology and its bearing on medical education."

Neurology (said Dr. Buzzard) was the oldest of the medical "ologies," not perhaps by right of primogeniture, but because of its exceptional precocity. This precocity arose from the fact that even in infancy its anatomical elements were more readily cemented together by physiology than was the case with any other branch of medicine. In the result the problems of neurology had become progressively more straightforward and perhaps easier of solution than those of other departments of medicine. The science of neurology was approaching exactitude in regard to the relationship of symptoms and physical signs to disorders of function and changes of structure. During the last quarter of the nineteenth century the edifice of neurology was in process of construction. The foundations were chiefly composed of anatomical facts interspersed with meagre physiological details by way of "mortar." The superstructure grew in height as disease after disease was quarried and laid in place, but in the absence of any considered plan the architecture was faulty and lacking in proportion and design. Nevertheless, incomplete though it was, it was an edifice to be proud of, and every year saw the foundations widened by additions to the knowledge of anatomy and physiology.

In speaking of present and past conceptions of morbid processes, the speaker employed a sporting analogy. He likened the earlier conceptions to the golf ball which was stationary before the player: the physician might miss it; the surgeon might slice it; only a quack might drive it out of bounds or into a hazard without penalty. The later conceptions were like the cricket ball which came from a distance and was deceptive in its flight, and the swerve of which required watching. A long experience of the bowler's wiles might enable the batsman to play the ball with increasing confidence, but the danger of being bowled, stumped, or caught out could never be very far away. "We want more cricketers and fewer golfers in our ranks."

In its early days (Dr. Buzzard continued) a specialized offshoot like neurology was apt to be isolated from its fellows. Only as it neared maturity was its relationship to the main trunk and the other branches clearly determined. It was not his intention to depreciate the work which had been done in the past, but the time had come when the map of medicine required careful reconsideration from the point of view of the medical student. It had become a maze rather than a map—a maze from which innumerable superfluous names and countless blind alleys must be eliminated in order that the main roads might stand out clearly for the student of medicine to see and follow. As an examiner he had been appalled at the amount of material the candidate was expected to assimilate. The medical curriculum required revision. In his own time he was taught physiology and anatomy, passed an examination in those subjects, forgot practically all he had learned, and started on new subjects called medicine and surgery. Three years' work, during which he learned much about disease and little about health, enabled him to pass another examination and qualify. A year later his steps were turned to Queen Square, and his thoughts to neurology, and he found that he had to go back to the beginning of things, relearn the anatomy and physiology of the nervous system, and so gain what was to him an entirely new conception of the relationship between health and disease. As time passed he realized that this conception was applicable not only to neurology but to other branches of medicine. Did the student of the present day go through a different series of experiences? He thought not. After two or three years of study of anatomy and physiology he had no knowledge of the normal standards as applied to the living human being, and therefore had not the necessary data to enable him to detect variations from the normal. Yet in the next two or three years he had so much to fill up his time that there was little or no opportunity of making good this deficiency, with the result that he qualified with such acquaintance with mature disease as was required of him, but more or less ignorant of health and uncertain in his detection of disorders of function.

A newly qualified practitioner should be familiar with health as represented by normal structure and function; he should have at his fingers' ends all the ordinary tests employed in medicine for detecting variations from normal function; he should be thoroughly acquainted with morbid processes, whether of degenerative, vascular, inflammatory, or neoplastic origin, and capable of recognizing the alterations of structure which they produced; he must be intimate with the history of disease as illustrated by its clinical course, and he should be well grounded in the established principles of treatment, realizing that therapeutic measures were very unstable and depended largely on the vogue of the moment. Under the present system very few newly qualified men were adequately equipped for the practice of medicine, though fortunately only a minority assumed really responsible positions without passing through some further kind of apprenticeship. In his view the student who had passed the threshold of anatomy and physiology should be made to feel that he had entered medicine. He should be faced with living as well as dead subjects, and his task should be made easier by facilities for comparing the normal with the abnormal. The study of musculature should embrace not only the original insertion of muscles, but their living function, their daily and hourly use, and the methods by which their action or inaction could be demonstrated. And what applied to the musculature applied to other tissues and organs. He outlined a reformed curriculum which would bring about what he had in view—the expansion of anatomy and physiology, the adoption early in the medical curriculum of methods, such as radiology, by which structure and function could be viewed from additional standpoints, and the study of psychology, which should also begin during the physiological era of the curriculum. His proposed alterations in teaching would necessitate some change in the point of view of examiners. Those conducting final examinations would need to satisfy themselves that candidates were adequately educated rather than made replete with facts, and that their knowledge of medicine and surgery was built on foundations of physiology and anatomy sufficiently strong to support the additions which post-graduate study would add to it year by year.

Dr. Henry Head, in proposing a vote of thanks, said that from the beginning physiology as taught at Queen Square had always associated structure and function. He recalled vividly his own early experiences at Queen Square, where he had to revise many things he had previously learned. One of his first interviews was with Rivers, who asked him what case he had been doing that day. "Just a straightforward hysteria," was his reply. "Then," said Rivers, "I am sure it is not." That sent him (the speaker) back in a humble mood, and he need scarcely say that the case proved to be one of disseminated sclerosis. Many such shocks were necessary, however, before he was sufficiently humbled to look at the work in the wards from the old point of view of the physiological laboratory. What he had been brought up to look for in his previous hospital experience was structure; now he was face to face with function. From the very first day at Queen Square structure and function had been associated, and it was because of this that neurology had made its advances. He was delighted to hear Dr. Buzzard insist that those great principles which underlay the progress of neurology were applicable to the rest of medicine, and that neurologists had been ahead of the rest of medicine, not because they had more knowledge than other people, but only because they had a better method. It was this better method that should be taught to the younger generation, and he welcomed Dr. Buzzard's proposed revision of the curriculum.

TINTED LENSES AND THEIR USES.

AT the meeting of the Ophthalmological Section of the Royal Society of Medicine on October 10th, Sir ARNOLD LAWSON, the incoming President, delivered his address from the chair.

Sir Arnold Lawson took for his subject "Tinted lenses and their uses." A good deal had been written, he said, about the ultra-violet rays and their destructive effects on the eyes. The general public had become imbued with a haunting fear of daylight, so that the wearing of glasses which eliminated ultra-violet rays had become a fashion. Tinted glasses seemed to be prescribed in an indiscriminate and indefinite way, with the idea of getting rid of the ultra-violet bugbear. But what was the real truth about the human eye and its susceptibility to ultra-violet rays? A great deal of protection was afforded by the cornea and the crystalline lens, especially the latter, against ultra-violet excess. Only ultra-violet of a very narrow and harmless range of wave-length—a small proportion of the possible ultra-violet radiation—reached the retina under normal conditions. Ordinary sunlight in the lower altitudes was rather poor in ultra-violet; the eye was constructed to allow the ultra-violet rays of ordinary sunlight to pass harmlessly to the retina, and a certain excess was excluded by the protective properties of the eye itself. There was no need, therefore, in the normal person to protect the eyes from ordinary daylight, and what he had been saying about the ultra-violet applied equally to the infra-red. Certain factors came in, however, to complicate the situation in some cases. In the Alps, for example, there was increased intensity of daylight; owing to the rarefaction of the atmosphere and the absence of vapour, the spectrum was extended at both ends, though more markedly at the red end than at the violet. Again, in certain states of health prolonged exposure to quite a moderate degree of light might be harmful because of the lowering of functional power. The presence of glare—that is, an undue amount of reflection from lower surfaces—was another factor which might lead to trouble. Here again, however, it was the luminous and infra-red portions of the spectrum rather than the ultra-violet which were involved. Snow-blindness was not due so much to excess of exposure to ultra-violet radiation as to excess of exposure to infra-red. Finally, various occupations required special adjustments. Acetylene working, for instance, exposed the worker to an intense ultra-violet radiation; glass-working to heat radiation.

He proceeded to show the results of certain tests of the spectroscopic value of tinted glasses. Incidentally the thickness of the glass was an important factor. Peacock blue of 2 mm. thickness shut off the red, orange, and part of the green, and also interfered with the blue and violet, and eliminated the ultra-violet, but similar glass 0.5 mm. in thickness let through a great deal more both of the red and of the violet. The absorption factor in the case of thin glass was enormously lessened, to a much greater extent than he would have thought possible if he had not seen the spectroscopic records, and he hoped that the Section or the Council of British Ophthalmologists would take steps to bring about some uniformity in the thickness of the glass used for tints. Taking glass of 2 mm. thickness, the result of his investigations was to show that the old London smoked glass, from the point of view of protection against ultra-violet radiation, was almost as good as the deeper shades of Crookes glass, and that as regards the red end of the spectrum it was better than the Crookes. If it was desired to eliminate both ends of the spectrum peacock blue should be used. The violet end of the spectrum was absorbed best by fieuzal glass. Crookes A and A2 were not really tinted glasses at all, but they furnished a useful way of protecting a sensitive eye in mild glare, and they did not disfigure the face or alter the colour values. For patients with healthy eyes but who were physically or mentally abnormal Crookes glass, especially B and B2, was excellent; but he thought that too much protection should be discouraged, and that as the patient improved in health the wearing continuously of some kind of tint should be gradually abandoned, because it was likely to become a pernicious habit. Cataract due to glass-blowing was caused by infra-red rays, and tints such as fieuzal 4 or 5 or peacock blue afforded the best prophylactic. Nothing was more harmful in the early stages of cataract than exposure to bright light of any kind. In cases in which a habitual tint was wanted there was nothing more comfortable than Crookes glass, but in active inflammatory diseases of the retina and choroid he would much prefer peacock blue.

In the course of a brief discussion, Mr. H. B. GRIMSDALE indicated a possible use for tinted glass in cases of middle-aged persons who were reluctant to give up their participation in sport and yet found difficulty in focusing moving objects. This difficulty, he believed, was due to a difference between the luminous perception of the two eyes, and the use of a tinted glass reduced the perception of the normal eye more to the level of the other so that the sight of the two eyes became better co-ordinated. Persons who had used these glasses had regained their efficiency at games.

Mr. ERNEST CLARKE said that the fear of glare came in with the advent of carbon points in early electric light, and the fear was now disappearing. He had found Crookes A and A2 of enormous benefit to people bordering on neurasthenia who were hypersensitive. The great point about the Crookes glass was that it did not cut off the luminosity, and was not unsightly. The late Sir William Crookes had told him that it would be too expensive commercially to separate from the serium the metal didymium, which was an adulteration. (A subsequent speaker stated that the value of the Crookes glass was in the didymium, one of the rare earths which had a positive absorption of the spectrum.)

Mr. TREACHER COLLINS said that he had advised amber-tinted glasses considerably. He was first led to appreciate their value by the experience of a medical colleague who was a mountaineer, and who, on the morning of a climb, painted his face yellow, a procedure which caused amusement to the other members of the party, but at the end of the day he was the only one whose face was not burning red. The speaker believed that snow-blindness was really due to the effect of ultra-violet rays on the surface of the eye, and accordingly he had ordered amber-tinted glasses. A surgeon on an Antarctic expedition had assured him that all the party wore amber-tinted glasses to protect themselves from snow-blindness, and even the ponies were similarly protected. Workers in the neighbourhood of furnaces, and cooks in the neighbourhood of ovens, found great relief from the wearing of peacock blue.

The experience of another speaker was that in mountaineering green glass was more comfortable than peacock blue, and gave the climber a better appreciation of objects; while yet another said that smoky amber glass had proved a perfect success in the case of a party on a shooting expedition to Labrador.

FLOURS AND CHILD NUTRITION.

AT a meeting of the Medical Officers of Schools Association on October 8th, Dr. L. R. LEMPRIERE presiding, a discussion took place on the relative values of stone-milled and other flours and breads in relation to the nutrition of the growing child.

Dr. ROBERT HUTCHISON said that the subject of the relative merits of roller-milled and stone-ground flour as a food for growing children had given rise to a great deal of controversy, and was one on which very divergent opinions were held. As a basis for discussion it would be well to recall a few chemical facts about flour. The wheat berry consisted of three parts: (1) the germ or embryo, (2) the husk or bran, (3) the endosperm. Of these the last made up by far the largest part of the berry. Each of these parts had its own characteristic chemical components. The germ consisted largely of soluble proteins the exact nature of which was to some extent unknown, and was rich also in phosphorus and fat. The bran contained a relatively large amount of mineral matter along with a considerable amount of protein derived from its inner layers. The endosperm consisted mainly of starch, but also contained some valuable proteins such as gluten. Water-soluble vitamin was contained in the germ and bran, but was absent from the endosperm. In roller-milling a white flour was obtained which

represented about 70 per cent. of the whole wheat, and was derived entirely from the endosperm. In stone-ground flour about 80 per cent. of the whole wheat was yielded, and a considerable part of the germ and some of the inner layer of the bran was contained in the flour. It followed, therefore, that stone-ground flour would be richer than white flour in proteins, in phosphorus, and in vitamins. It was true that the difference in protein was not very great, for it had been calculated that even if the whole of the germ was included in the flour the protein content of the latter was increased only by about 0.6 per cent. This, however, was not quite the way to look at the matter, for it was the quality of the protein that was of importance, and not mere quantity, and it had been found that the proteins of the germ were peculiarly suited for the promotion of growth—in other words, they were of specially high biological value. Little was known as to the form in which phosphorus was contained in stone-ground flour. There was no reason to doubt, however, that it was in a form available for nutrition and capable of combining with calcium in bone formation. The question of vitamins he might pass over, as it would be dealt with by others. There remained to be considered the digestibility of stone-ground flour and the "availability" of its nutrients. As to this it might be said with confidence that it was as completely digestible (in the physiological sense) as white flour. Indeed, experiments made during the war showed that even wholemeal flour was much more completely digested than was at one time supposed, provided it was finely ground. Nor was bread made from stone-ground flour, if properly baked, less digestible (in the popular sense) than white bread, while it had the advantage of being more "staying" to the stomach.

Dr. Hutchison then turned to consider the bearing which these chemical and physiological facts about the two sorts of flour and the breads made from them had upon the question of the choice of bread for the feeding of growing children. It was generally agreed that during growth there was required (1) an abundant supply of energy (calories) in the diet; (2) a relatively large proportion of protein; (3) a sufficiency of mineral matter, especially phosphorus and lime; and (4) a supply of accessory constituents or vitamins. How, then, were the two forms of bread calculated to meet these requirements? With regard to the supply of energy there was nothing much to choose between them, but with regard to protein it was obvious that the advantage was with the stone-ground flour. It was true that the difference in total protein was not very great, but, as he had already said, some of the protein derived from the germ was of specially high tissue-building value. In the case of children who had an abundant mixed diet this special protein was obtained from other sources, but where the diet was mainly composed of bread the difference might become of considerable importance. The same was true of the mineral constitutents. In the case of a child fed on an abundant and mixed diet the comparative poverty of white flour in this respect did not matter, but if the child was fed mainly on bread it might make all the difference to growth and bone formation.

There remained the important question of the vitamins, into which he would not enter in detail. But it was evident that the opinion one formed as to the relative merits of white and stone-ground flour would depend largely upon the importance to be attached to the vitamins in nutrition. His own view was that there was a tendency at present to exaggerate the importance of the vitamins. He agreed that they were necessary for healthy growth, and that absence of the water-soluble vitamins caused beri-beri and scurvy. These diseases, however, were never met with in this country, and he was not aware of any clear evidence that general ill health, apart from these specific diseases, was due to vitamin defect. He could not help feeling that if the diet was right in other respects, the vitamins would look after themselves, and that in such an abundant and mixed diet—which was what they should aim at—the question of what sort of flour the bread in the diet was made from was of minor importance.

Dr. C. E. Shelly dealt in some detail with the manner in which the grain of wheat was treated in the production of flour by the stone-grinding mill. The result of the process was that wholemeal flour contained everything that was in the grain—both layers of bran, the endosperm (starch), a small amount of gluten, cellulose, and the germ with its valuable contents. The bran and the germ between them gave it a slightly dark colour, so that it did not make such an attractive looking bread or pastry. The bran could not be looked upon as an essentially nourishing part of the grain, and it had an action which was not quite comfortable to the modern stomach. An occasional change to wholemeal bread was useful, but as a constant article of diet it might be improved. The bran could be removed from the wholemeal by a combination of winnowing and sifting, but in depriving the flour of the bran it was deprived of a very small percentage of the germ as well. There remained a form of flour which was conveniently named millstone flour. This could be sifted again to greater fineness and whiteness, though with each sifting a little more of the germ was lost. This millstone flour was a complete food; it cost a little more than white roller-milled flour, but it was cheaper in the end because it went further. It made a kind of bread which invited mastication. It was said not to keep so well as ordinary flour, but with this he did not agree; it only needed to be kept under proper conditions. In the case of roller-milling the grain was squashed rather than ground, and the germ was cut away from the rest of the grain. The result of the roller-milling process was to deprive the flour of the germ and the bran, leaving the endosperm, which was largely starch, a small amount of gluten, and some cellulose. The germ and the bran were sold under the misleading name of "offal," and the flour, representing mainly the endosperm, was sold as a starchy kind of food. Was it fair that children should be made to take a bread which had been deprived of some of the best qualities of the original wheat and which did not contain the nourishment to which they were entitled?

Sir Harry Baldwin said that the jaws of civilized people in quite modern times had become deformed or ill developed, to their great detriment, to say nothing of the quality of the teeth. It seemed to him that this deformity had arisen during the period over which we had been reducing our vitamins by removing them from the flour. There was a good deal to suggest that the small and misshapen jaw was due to partial avitaminosis in early life. This deformity conduced largely to dental caries. The general opinion of dental surgeons was that caries was mostly due to the kind of food eaten, especially the sticky carbohydrate food which accumulated in the interstices between the teeth. The bread from finely ground white flour produced a sticky substance which remained about the teeth most tenaciously. The staple food of the poor should not be deprived of its important natural constituents simply to pander to the vitiated taste for white flour.

Dr. G. E. Friend, medical officer to Christ's Hospital, said that at Horsham the boys had been fed on a bread made from stone-milled flour containing a varying proportion (from 76 to 80 per cent.) of the whole grain, and during the last two years a certain amount of the bread had been made from a flour containing 96 per cent. of the whole grain. It was found that the boys at first would not eat very largely or for any considerable period of the stronger bread, but during the winter months nearly one-third of the bread was of the 96 per cent. kind. As a result of the use of these breads there had been a great improvement in the teeth. When the school first removed to Horsham the average number of carious permanent teeth per boy found at each annual inspection was four; now it was 1.5. He could not claim, of course, that this improvement was entirely due to the use of wholemeal bread. In other respects the boys had improved, particularly in weight, though here again other factors came in as well as food. The chief value of the wholemeal flour, in his opinion, was that it ensured proper mastication.

Dr. Ogier Ward gave the percentages of waste which took place at the successive crushings in the process of roller milling. He added that since he had been able to induce his local baker to produce millstone bread he was content with nothing else. Mr. Gardener (St. George's Hospital) gave an account of some experiments undertaken

during the war which went to prove the value of wholemeal bread. Miss May Yates said that it was quite possible to make wholemeal in roller mills, with some adjustment of the machinery, and this statement was endorsed by another speaker who was a baker and who gave some technical details of the process.

The following resolution, proposed by the Chairman, Dr. Lempriere, was carried without dissent:

> That whiteness of flour is not in itself necessarily an indicator of its value as a food, but that the natural germ-containing bread made from an 80 per cent. flour tastes better and is more nutritious, particularly for the growing child, and should be provided.

It was stated that this would be sent to schoolmasters and educational authorities.

Reviews.

SOME MEDICAL ESSAYS.

Dr. Arthur F. Hurst's *Essays and Addresses on Digestive and Nervous Diseases and on Addison's Anaemia and Asthma*[1] will be heartily welcomed by the numerous readers of these papers, which originally appeared in this and various other journals, not only because they are now available in a convenient form, thus providing a continuity not otherwise so easily attainable, but because they have been revised and expanded so as to represent the author's latest opinions. Thus the account of achalasia of the cardiac orifice of the stomach, which appeared in the *Quarterly Journal of Medicine* in 1914, now contains a reference to a paper written in 1922, and is supplemented by an article on pelvi-rectal and anal achalasia, or so-called congenital idiopathic dilatation of the colon. The address appropriately delivered at Harrogate on "The sins and sorrows of the colon," recalling a somewhat similar title for a lecture on splenic ailments by his late senior colleague, Sir F. Taylor, is a happy blending of the historically interesting with the practical applications of recent research. The chapter on ulcerative colitis, which appeared in the *Guy's Hospital Reports* (1921), of which he is the successful editor, has an addition, dated last year, showing that ten cases have now been successfully treated by intravenous injections of antidysenteric serum, a control trial of simple horse serum failing to give the same benefit.

The two lectures on gastric diatheses—the hypersthenic which disposes to duodenal ulcer, and the achlorhydric with its association with appendicitis, cholecystitis, pancreatitis, and rheumatoid arthritis—are followed by a complete statement of his present views on "Addison's [so-called pernicious] anaemia" and its relation to subacute combined degeneration of the spinal cord. In 16 cases of this nervous disease Dr. Hurst has found complete achylia gastrica, which is such a constant factor in pernicious anaemia; he argues that in both these diseases the loss of the antiseptic action of the normal gastric juice makes it possible for bacteria, such as the *Streptococcus longus*, swallowed in cases of oral sepsis, to infect the intestines and produce haemolytic and neurotoxic bodies, and that the relative amount of these two toxins determines whether the haemolytic or nervous symptoms predominate. The nervous disorders of the stomach and intestines, the hysterical element in organic disease, and contractures are considered in a clear and illuminating style, and there are interesting accounts of asthma, appendicular dyspepsia, and cholecystitis and gall stones in the light of recent research. Throughout the work the value of team work, which is generously acknowledged, is obvious, and the reader cannot but be impressed by the new and attractive aspects of the application of research to medical practice, set forth with an open mind as to future modifications that further investigations may make necessary.

[1] *Essays and Addresses on Digestive and Nervous Diseases and on Addison's Anaemia and Asthma.* By Arthur F. Hurst, M.A., M.D.Oxon., F.R.C.P. London: William Heinemann (Medical Books), Ltd. 1924. (Demy 8vo, pp. vii + 306; 15 plates, 50 figures. 21s. net.)

"THE EXTRA PHARMACOPOEIA."

All persons interested in the progress of therapeutics will welcome the appearance of a new edition, the eighteenth, of Martindale and Westcott's well known *Extra Pharmacopoeia*.[2] It is four years since the last edition appeared, and the first volume only is now issued; the second is to follow in due course. The book has for so long been so popular with the medical profession as a handy work of reference that it is superfluous to describe its general scope. In spite of the continuous and rapid advance of therapeutics, the authors still aim to give an account of the materia medica, chemistry, and therapeutic action of every drug the medicinal use of which is in any way established.

The two outstanding impressions created by a survey of the present volume are—first, that therapeutics have made very extensive and remarkable advances in the past four years, and, secondly, that the authors have shown indefatigable energy in condensing into their new volume a full summary of these advances.

The following are some of the chief new features included in the present edition. Insulin is the most important new therapeutic substance described; eight pages are devoted to a description of the discovery, modes of preparation, standardization, and therapeutic employment of insulin. A number of important new trypanocidal and spirochaeticidal remedies are described, the chief of which is the synthetic substance "Bayer 205"; it is well treated in a page and a half. A note is also given concerning No. 309, the French product prepared by Fourneau this year, which is probably identical with "Bayer 205." Tryparsamide, the new American product, is also described.

No fewer than six pages are devoted to the various bismuth preparations that have been introduced for intramuscular injection in the treatment of syphilis. The two new mercurial compounds, flumerin and mercurochrome, are mentioned shortly. The former is a compound for use in syphilis, and the latter is a very valuable disinfectant suitable for application to mucous membranes. Some interesting new compounds introduced by Dr. Martindale also deserve special mention—namely, aspriodine, a compound of iodine and salicylic acid; sedasprin, a compound of bromine and salicylic acid; and emetine periodide, which is stated to be superior to emetine bismuth iodide in the treatment of chronic cases of amoebic dysentery. Besides these new compounds the advances in therapeutic knowledge during the last few years have necessitated the rewriting of the accounts of the pharmacological actions of many other drugs. The ten pages devoted to the description of the vitamins contain material that is nearly all new work, and the same is true of the article on protein therapy.

These notes on a few of the salient new features of the present edition show very clearly how careful the authors have been to bring their book completely up to date. Great praise is due to them for the care they have taken to give a full account of all the recent advances in therapeutics, but they have performed another almost equally valuable service by wielding the blue pencil in a drastic manner, for they have cut out a large number of useless drugs and thus have prevented any appreciable increase in the size of their book. A special feature of the new edition which practitioners will find of the greatest value is an account of the provisions of the Dangerous Drugs Acts. A study of this article will save medical men from incurring the fearsome penalties enacted in these Acts. The authors provide an interesting preface to the volume, in which they mention the chief new features, and also discuss a number of interesting problems. They criticize the Dangerous Drugs Acts severely, for, as they point out, "The Acts in fact punish those who ought to be supplied for the sins of those who abuse the drugs." The preface concludes with an appeal to practitioners to support home industries by doing all in their power to increase the use of British drugs.

In conclusion we may say that the present volume keeps up the high standard set by the previous editions of this

[2] *The Extra Pharmacopoeia of Martindale and Westcott.* By W. H. Martindale, Ph.D., F.C.S., and W. W. Westcott, M.B.Lond., D.P.H. Vol. I, eighteenth edition. London: H. K. Lewis and Co., Ltd. 1924. (Fcap. 8vo, pp. xxxviii + 1163. 27s. 6d. net.)

work, and that practitioners will find this edition just as complete, up to date, and useful a work of reference as they have found its predecessors to be.

THE MAYO CLINIC AND FOUNDATION.

THE remarkable activities radiating from the Mayo brothers almost take the reader's breath away, for the fifteenth volume of the *Collected Papers of the Mayo Clinic and the Mayo Foundation*[3] contains references to 308 papers written by 148 authors working at one or other of these institutions, which have appeared during 1923. The present year sees a change in the policy of publication; last year the two volumes published contained 2,100 pages; this year a single volume of less than 1,400 pages has been brought out, but 97 of the 308 papers are given by title only and others are abridged or abstracted. This plan has been adopted for papers dealing with subjects of technique or of such a specialist character as to be of limited interest to the general surgeon or physician. The papers, which have been published elsewhere, are grouped under the headings of the alimentary tract, the urogenital organs, ductless glands, blood and circulatory organs, skin and syphilis, head, trunk and extremities, brain, spinal cord and nerves, technique, and general or miscellaneous. As would naturally be anticipated, the largest number of papers deal with the alimentary system; they number 70, and 18 are given by title only; the urogenital organs are discussed in 41 papers, the head, trunk and extremities in 46, the ductless glands in 33, and the blood and circulation in 30. The last or miscellaneous group contains 41 papers, 18 of which are recorded only by title, but a few of these may be mentioned on account of their interest; in recording his observations on medical conditions in Europe, Dr. Charles Mayo says that the surgeons are doing more widely diversified work than the average surgeons in America, fewer fields of surgery being held by specialists. Dr. William Mayo, who contributes six papers, devotes much attention, in his address to the American Surgical Association on "A Question of Size," to the atom and the molecule, and pleads that the overburdened students of medicine should be taught more biophysics, and that the time spent on chemistry should be correspondingly curtailed. In his discussion of the distinctive features of undergraduate and graduate medical schools, Dr. L. B. Wilson agrees that these two functions, which he describes as the preparation of general practitioners and the training of specialists, should remain distinct, but he believes that they should be closely correlated, and that a university should undertake them both. Dr. William C. MacCarty in a paper on "The Pathologist of the Twentieth Century" deals with the real status of the pathologist in the profession, and urges a broad outlook and a closer approach to the patient. Among his five other contributions to this volume is a combined discussion of the radiological diagnosis of gall-bladder disease, in which he states that among five thousand gall bladders examined microscopically seventeen only were normal. This volume, like its predecessors, is a veritable storehouse of information and a monument to the Mayo brothers.

THE MICROSCOPIC AND GENERAL ANATOMY OF TEETH.

THE second edition of Mr. HOWARD MUMMERY'S *Microscopic Anatomy of the Teeth*[4] has been enlarged by some 200 pages by the addition of a second part on the general anatomy of the teeth, both human and comparative. Throughout the book we are conscious of the philosopher trying so to unravel the tangled skein of his special knowledge as to co-ordinate his facts with the great central idea of evolution. The dominant note is evolution, and this, perhaps, explains the use of the hackneyed word "comparative" in the title to designate an account of the teeth of all creatures, extinct or living, of lesser degree than man.

But it is the title only we would have altered. The idea itself gives life, and a most fascinating life, to the dry bones of odontology. The evolution of the human molar provides matter for a most interesting chapter. "Concrescence" and "tritubercuły" are displaced and the "dimer theory" takes their place, its claims resting largely on the histological work of Bolk on the developing teeth of existing animals. A wider investigation into the enamel organ of the various orders of living things shows that some enamel organs resemble secreting glands, some are like the human enamel organ characterized by large ameloblast cells, while in others the first formed and actually active ameloblasts are replaced at a later stage of enamel formation in the same tooth germ by a secreting gland. The question arises, Which is the primitive method of enamel formation, and can the enamel organ be used as a help in tracing the relationships of animal life? The enamel of some animals is shown to have a definite fibrillar basis, and we would ask the author, Does this point to a closer relation between enamel, dentine, and bone than has hitherto been allowed?

The vexed question of the innervation of dentine is dealt with in the chapter on the dental pulp, and though we think that the author's figures show there is something in the dentinal tubules which needs attention, and may well be nerve fibrils, we cannot follow him in his description of a synapsis and nerve-end cells beyond from which those fibrils originate. We cannot see in Fig. 136 the neurofibrils in the dentine it is intended to show. As a point in evolution we may wonder why an organ whose life is spent in calcifying itself till often no pulp remains should be provided with a nerve-end organ worthy almost of a retina.

The second part of the book has been rendered additionally attractive by illustrative plates, many drawn by the author himself, of the animal under discussion; or of its skull and teeth, taken from actual specimens. In this connexion we may note the plate on the ancestry of the horse as especially illuminating. We have a few complaints to make. The paragraphing of the letterpress is sometimes faulty; the historical review of the literature on dentine innervation ends curiously in a description of persistent pulps and injured elephant tusks. Can the author find no word but "anlage" to express his meaning on page 428; or if he must use it, can he explain just what the original German author had in mind? As it stands it is simple mystery.

The author hopes the book "will meet the requirements of the B.D.S. degree of London and the various other university degrees and diplomas." Beyond a doubt it will, and if any man of mind and leisure take up this volume he will find it hard to lay it down, and will run great risk of becoming an ardent worker in the fascinating field of odontology.

THE ACTION OF ALCOHOL ON THE HUMAN ORGANISM.

SOME years ago (1918, vol. i, p. 238) we drew attention to the work issued by the Advisory Committee appointed by the Central Control Board, under the title of *Alcohol: its Action on the Human Organism*, which was intended to afford a basis for future research and as a review of the existing state of scientific knowledge as to the action of alcohol on the human organism. The second edition of this valuable and admirably impartial report,[5] which has been edited by the Alcohol Investigation Committee of the Medical Research Council, contains numerous additions, such as an account of the conditions affecting the rate of absorption of alcohol, as shown by the work of Mellanby and Miles, the experiments carried out by Vernon, McDougall and Smith, and Miles for testing the effects of alcohol on the accurate co-ordination of nervous and muscular activity which is necessary for skilled movements, statistics illustrating the relations of alcoholism and insanity, and recent work on the effect of parental alcoholism on the offspring.

[3] *Collected Papers of the Mayo Clinic and the Mayo Foundation.* Edited by Mrs. M. H. Mellish. Vol xv, 1923. Philadelphia and London: W. B. Saunders and Co. 1924. (Med. 8vo, pp. xvii + 1377; 410 figures. £3 3s. net.)

[4] *The Microscopic and General Anatomy of the Teeth, Human and Comparative.* By J. Howard Mummery, C.B.E., F.R.C.S., D.Sc.Penn., L.D.S.Eng. Oxford Medical Publications. Second edition. London: Humphrey Milford, Oxford University Press. (Demy 8vo, pp. xiv + 618; 41 plates, 270 figures. 35s. net.)

[5] *Alcohol: its Action on the Human Organism.* Second edition, enlarged and revised. London: Published by His Majesty's Stationery Office. 1924. (Cr. 8vo, pp. xx + 170. 1s. 6d. cloth, 1s. paper.)

A new chapter has been added on alcohol as a drug, in which the conclusion reached is that its main value is due to its narcotic action. It is also recognized that alcohol possesses a limited food value under conditions in which ordinary nourishment cannot be taken, and that by diverting blood from the internal organs to the surface it helps to ward off a chill. On the other hand, it is shown that there are no grounds for the popular belief, still held by some medical practitioners also, that alcohol possesses a stimulant action on the heart, respiration, and vital activities in general, or that it has a protective value against infection. The chapter on alcoholism and longevity contains a criticism of Professor Raymond Pearl's work, and a new paragraph relating to the risks of venereal disease and accidents in non-abstainers. The appendices dealing with the total consumption of beer, spirits, and wine in the United Kingdom and the annual deaths from alcoholism and cirrhosis of the liver have been brought up to date.

AN INTRODUCTION TO PHYSICAL ANTHROPOLOGY.

UNDER the title of *A Short Course on Physical Anthropology*,[6] Professor DRENNAN has published a serviceable little book which provides a most helpful introduction to this subject. Although primarily written for the students of anatomy of the University of Capetown, it will probably be used more widely, since it serves as an introduction to the larger textbooks and is likely to stimulate greater interest in anthropology among medical students. The subject is dealt with in an elementary manner throughout, and the simpler methods used in craniology are described in a clear and practical style. In the later pages brief reference is made to some of the most significant discoveries of fossil man. The reader is thus prepared for the study of monographs in which full accounts of primitive human remains may be found. A list of the more important books of reference is included in the preface. Professor Drennan is to be complimented upon producing a very modest book, likely to be welcomed and appreciated by teachers and students of anthropology.

MEDICAL HISTORY OF THE WAR.

A CORRESPONDENT writes to the effect that he does not think the medical authorities in Egypt did in fact expose themselves to the unfavourable comment of the critics mentioned in our review (BRITISH MEDICAL JOURNAL, July 19th, p. 106) of the third volume of the *Medical History of the War*. (1) The officers successively in charge of the splint factory at Alexandria were also in charge of the surgical division of one of the hospitals. (2) They got no extra pay for their extra work, and as far as he knows such work was not recognized by the award of any decoration. (3) The factory was kept open in 1919 for the purpose of preparing sets of models of all appliances used in the East by the medical services, including ambulance sand carts and sledges, to meet the wishes of various departments. One set was presented to the Khedive, who took much interest in the enterprise.

This letter has been shown to our reviewer, who says that he has now had an opportunity of reading the final annual report on the work of the Central Splint Factory at Alexandria which is in question. In this the officer, the last and longest in charge of it, gives a history of the undertaking from the beginning. The three officers successively in charge were also in charge of the surgical division of No. 21 General Hospital. Starting as merely an annexe to the splint room of this hospital, the undertaking rapidly grew to be very large, its wages bill alone eventually reaching £2,000 a year. The calls upon it, many of which came from far distant commands, were so great that work had often to be carried on until nine at night throughout the whole week. Similar factories, our correspondent holds, will always be necessary in great overseas wars, and it is an advantage that they should be managed by a surgeon. Those in charge at Alexandria found themselves handicapped in some degree by lack of technical knowledge, and of experience in managing workmen, and in keeping accounts on a large scale. Hence any future appointees should be secured opportunities of studying the subject. The factories should be mainly assembly shops, the splint parts being cut by machinery and supplied by contractors. This was in effect the plan eventually adopted at Alexandria. The work of the officers in charge was gravely increased by the multiplicity of small variations of pattern demanded by medical officers and the confusing names given to them. Young surgeons proved very fertile in devising apparatus, but provided very imperfect specifications and drawings. Consequently the officer in charge, besides drawing up an elaborate nomenclature, had often to make new drawings, or even paper or other models of the splints demanded, before the workmen could understand what was required. He suggests that in order to obviate such difficulties on a future occasion a committee should draw up a list of standard splints, detailing the measurements necessary and the best materials to use for each. The same committee should also emphasize the fact that apparatus, however well designed, can play only a minor part in good surgery.

Commenting on this report, our reviewer observes that it shows what excellent work outside their own true province medical officers can do when willing to undertake any and every task demanded of them. He thinks, however, that the critics mentioned by him would probably not have been silenced by the double employ of the officers concerned. They would have maintained that it is not economic to employ surgeons on work which can be done by less highly trained and more easily obtained officers, and that this is the case in connexion with splint supplies. In France splints were standardized at an early date by an expert committee, and it would have been considered the duty of officers in charge of surgical divisions to discountenance unnecessary demands for other than regulation patterns. Had the work of a hospital in France been of such a kind as to allow of the surgical officer managing an important enterprise outside its purview in addition to the duties of his appointment, the staff should have been reorganized so as to effect a corresponding economy in other medical personnel. In France quartermasters were in charge of all stores dealing with surgical apparatus and their repair. With regard to our correspondent's other remarks, the reviewer writes that extra pay is allowed in the R.A.M.C., not for extra work but as an inducement to medical officers to qualify for appointments requiring special knowledge for their adequate fulfilment. Decorations other than those for services in action would seem usually to have been awarded in relation to the prominence of the appointment held. The continuance of the factory for the purpose indicated is one of the many expenditures to which the taxpayer would probably have objected as unnecessary had he been aware of them.

NOTES ON BOOKS.

THE second volume, devoted to children's diseases, in the treatise of medical pathology and applied therapeutics, edited by Professor Emile SERGENT and MM. L. RIBADEAU-DUMAS and L. BABONNEIX[7] consists of two parts. In the first Professor Weill and other members of the Lyons Medical Faculty (MM. Péhu, Gardère, Bertoye, and Dufourt) discuss infections of the newborn and certain acute diseases, such as dysentery, malaria, acute articular rheumatism, influenza, typhoid, and diphtheria as seen in children; Professor Nobécourt deals with congenital and acquired heart disease; M. Merklen contributes chapters on diseases of the liver, kidney, and genito-urinary apparatus; and MM. Babonneix, Voisin, and Tinel give an account of various diseases of the nervous system. Most of the second part is devoted to a description of practical orthopaedics by MM. Lance and Lamy; the other articles include a discussion of anaemias in childhood by M. Rives and a chapter on the therapeutics and posology of childhood by M. Terrien. Every article is essentially practical and lucid, and the work should be read by those who wish to gain a clear idea of French teaching in pediatrics.

[6] *A Short Course on Physical Anthropology.* By M. R. Drennan, M.A., M.B., F.R.C.S.E. The S. A. Electric Printing Co., Ltd. (Med. 8vo, pp. 43; 7 figures. 5s.)

[7] *Traité de Pathologie Médicale et de Thérapeutique Appliquée.* Published under the direction of Emile Sergent, L. Ribadeau-Dumas, L. Babonneix. Tome XXV—Pédiatrie. Tome ii in two volumes. Paris: A. Maloine et Fils. 1923. (Demy 8vo: vol. i, pp. 624, 123 figures; vol. ii, pp. 676, 302 figures. Fr. 60 the two volumes.)

The Pneumococcus and Pneumococcal Affections[8] is a translation into English by Drs. D. S. PAGE and EVA MORTON of the monograph from the Pasteur Institute prepared by Drs. COTONI, TRUCHE, and Mlle RAPHAEL, which was reviewed in our columns of April 21st, 1923 (p. 683). A preface to the English edition points out that the loose terminology of applying the label of Type IV to all pneumococci not agglutinated by the serums of Types I, II, or III must not be allowed to give the erroneous impression that the Type IV organisms are related closely to one another. The bibliographical references have been confirmed, and the list has been extended to include the titles of publications since the appearance of the French edition. This monograph in its English form will be of great value to all those who are concerned with pneumococcal affections and their treatment.

The very interesting pamphlet by Mr. R. KIRKPATRICK, assistant keeper of the Department of Zoology in the Natural History Museum, on the *Biology of Waterworks* was discussed on its first appearance in a leading article on December 15th, 1917 (p. 799). A second edition was called for within a few months of the first, and now a third has appeared.[9] The three main sections of this well arranged and well illustrated little work are headed: (1) animals associated with water supply; (2) plants in waterworks; (3) biology in relation to water purification. Incidentally it provides a key to a small exhibition, illustrating the physiology and pathology of drinking water, in the central hall of the Natural History Museum.

[8] *The Pneumococcus and Pneumococcal Affections.* By L. Cotoni, C. Truche, and Mlle A. Raphael. English edition by D. S. Page, M.A., M.B.Cantab., D.P.H., and Eva Morton, M.R.C.S.Eng., L.R.C.P.Lond. London: J. Bale, Sons, and Danielsson, Ltd. 1924. (Med. 8vo, pp. viii + 218; 6 figures, 40 charts. 16s. net.)

[9] *The Biology of Waterworks.* By R. Kirkpatrick. Third edition. London: British Museum (Natural History), and B. Quaritch, Ltd. 1924. 1s.)

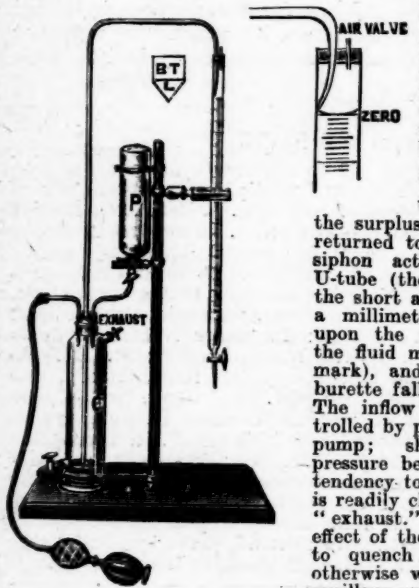
PREPARATIONS AND APPLIANCES.

Insulin Hydrochloride.

WE have received an interesting new product from Messrs. Burroughs, Wellcome and Co.—namely, insulin hydrochloride, made up in the firm's tabloid form. Each tabloid corresponds with an average dose of 10 clinical units, and when dissolved in 0.5 c.cm. of sterile distilled water makes an equal volume of standard insulin. The makers state that the product has been prepared under conditions approved by the Medical Research Council, has been submitted to exhaustive clinical tests, and has been found in all respects equal to standard insulin. Provided its keeping qualities are established, this new preparation is likely to be a great convenience to all who wish to administer insulin. The tabloids are convenient to administer, are readily portable, and may be dissolved within the syringe.

A Power Burette with Self-adjusting Fluid Level.

Dr. J. P. S. DUNN (Ministry of Pensions Hospital, Orpington) writes to call attention to a new burette devised by himself and Mr. L. G. Blore, assistant in the chemical laboratory. The diagram illustrates a self-filling and self-adjusting burette, and the mechanism is as follows: The burette is filled by pump pressure, which is maintained until the fluid level has risen beyond the zero mark shown in the diagram. Upon releasing the pump the current is reversed: the surplus fluid in the burette is returned to the cylinder C by the siphon action of the connecting U-tube (the capillary extremity of the short arm of which is adjusted a millimetre or more—depending upon the radius of curvature of the fluid meniscus—above the zero mark), and the fluid level in the burette falls automatically to zero. The inflow may be delicately controlled by pressure upon the rubber pump; should, however, this pressure be unduly sustained, any tendency to overflow of the burette is readily checked by release of the "exhaust." The "dead-beat" effect of the latter further operates to quench the oscillations which otherwise would be induced in the capillary extremity of the connecting tube. Messrs. Baird and Tatlock, 14, Cross Street, Hatton Garden, E.C., are the makers. For permission to publish, acknowledgement is due to the Director-General of Medical Services of the Ministry of Pensions.



ROYAL COMMISSION ON LUNACY AND MENTAL DISORDER.

(*Continued from page 685.*)

AT the second meeting of the Royal Commission on Lunacy Law and Administration and Mental Disorder, on October 8th, under the chairmanship of the Right Hon. H. P. MACMILLAN, K.C., the examination of members of the Board of Control was continued.

Sir FREDERICK WILLIS, chairman of the Board, described the procedure followed on the discharge of a private patient.

The CHAIRMAN: It appears that a patient must always be discharged if the person on whose application he was detained desires the discharge, provided only that the patient is not in a dangerous state or unfit to be at large, in the opinion of the medical officer in charge, subject, of course, to appeal to your Board. The person on whose application the patient has been detained might have an interest in his continued detention. Suppose a person equally interested in the patient wanted his discharge, what action could he take?

Sir F. WILLIS: He could come to the Board of Control, and the Commissioners would proceed, independently of the applicant, to investigate the case. We have had such cases fairly frequently, and they are always inquired into unless the person making the application is obviously unreliable, or the case relates to a patient whom we ourselves have seen quite recently and know all about. There is no statutory obligation on the Board to do this, but in the case of a Government department "may" has the effect of "shall."

Sir DAVID DRUMMOND: Suppose there is no independent party interested in the welfare of the patient, and the applicant for the original order makes no move, who is entrusted with the consideration of the case?

Sir F. WILLIS: Our domestic machinery would bring to our notice anything deserving attention.

The CHAIRMAN remarked on the curious provision that a patient who had escaped from detention and remained in hiding for fourteen days was free from restraint, the order lapsing. Sir F. WILLIS said that he saw no reason in this stipulation; it was probably an inheritance from the old days of lunacy administration.

The differences between the procedure on discharge of a private and on discharge of a rate-aided patient were discussed, and the CHAIRMAN remarked that here, as in the procedure with regard to the order of detention, the explanation of the difference was probably that there was no pecuniary inducement on the part of any person to retain the rate-aided patient in the institution.

Dr. BOND said, in reply to a question from the chair, that full facilities and access to the patient would be given for an independent medical examination. Cases had arisen, although rarely, in which there was a difference of opinion between the medical superintendent and the outside doctor. In such cases one would be inclined to give greater weight to the medical superintendent, who saw the patient constantly, than to the outside doctor, who saw him on one occasion when he was perhaps apparently normal, for most of these patients had their lucid periods. There was, however, a growing practice, which the Board encouraged, for the medical superintendent, on the admission of a patient, to discover the name of his family doctor if there was one, and inform him briefly as to the facts of detention and invite him, if in the neighbourhood of the asylum, to come in and discuss the case. At one hospital this was done in every instance.

The question of patients sent out on trial was next discussed. Sir F. WILLIS said that in the year 1922-23 the number of patients from borough and county asylums sent out on trial was 5,525; a large number had to return to the institution. With regard to the adequacy of accommodation, he expressed the view that mental hospital accommodation was inadequate, and that in a short time the position would be serious, owing not to any undue increase in insanity, but to the growth of population.

The CHAIRMAN thought it might be necessary to reconsider the policy which since 1890 had arrested the growth of the licensed house. If fifty-five licensed houses were sufficient in 1890, a larger number might be permitted now. Sir F. WILLIS said that the licensed house was a very useful institution, and almost always well managed.

The witness was next questioned about medical certificates. He said that there were very few misdemeanours in this respect under the Act, but difficulty did arise through medical practitioners withholding certification of one of their private patients in order to avoid the stigma of detention. That was a contravention of the Act, and of many such cases the Board could have no knowledge. The practice of the Board on learning of

such a case would be to apply to the Lord Chancellor for an order.

The CHAIRMAN said that of course the circumstances might vary infinitely. This matter would be considered by the Commission at a later stage in connexion with voluntary treatment. He went on to refer to insane persons in workhouses. What was it that determined whether a patient found himself in a public asylum or in a workhouse? Sir F. WILLIS said he was afraid it was largely accident.

The CHAIRMAN said that the asylum provided a means of treatment and possible cure. Workhouse institutions were not the proper place for the reception of patients likely to improve under treatment. If they must be used it should be for chronic and hopeless cases. Sir F. WILLIS said that his Board would welcome consideration of this matter by the Commission. He felt that at present the best use was not made of the total accommodation. The CHAIRMAN thought it also might be desirable to have a more extensive series of regulations pertaining to lunatic paupers in workhouses, affording them the same protection and facilities for making complaints as in the case of patients in other institutions.

Sir F. WILLIS, in reply to further questions, said that the Board had no statutory powers in the appointment of medical and nursing staffs or the arrangement of dietary; it could make recommendations.

Dr. BOND, at the request of Mrs. Matthew, described what happened to a patient on arrival at an institution. A preliminary physical examination, directed specially to cleanliness and to marks of injury, was made while the persons who had brought the patient remained on the premises. The patient was then put to bed for a week at least, and an elaborate examination was made, probably by more than one doctor. The cerebrospinal fluid would be examined, a blood count made, the temperature recorded, and so forth, and the statement of the mental and bodily condition of the patient was sent to the Board of Control. The examination was repeated at monthly intervals, certainly for the first three months and probably for the first year, and later at quarterly intervals. There was no rule that the physical examination must be repeated, but there was a rule that all changes must be noted. He added that mechanical restraint was now very rare in asylums.

Sir HUMPHRY ROLLESTON asked what happened if one of the medical certificates on which the patient was detained was found to be out of order and the certifying doctor could not be found—that is, was out of the country. Dr. BOND said that if the certificate was essentially faulty the Board would declare the order invalid and start again; if it was merely a technical fault the order might remain.

Sir H. ROLLESTON asked how often it happened that the second certificate—the first having been given by the family attendant—was by a recognized expert in mental disorder. Dr. BOND said that this depended on the locality; in the metropolis it frequently happened that the second certificate was given by a well known specialist. He added that faulty certificates were extremely few compared with the hundreds of thousands of proper certificates that came to the Board, and that the medical profession as a whole had nothing to be ashamed of in the matter of certificates.

Sir DAVID DRUMMOND asked whether medical officers in mental institutions had sufficient clinical experience. Was it necessary for them to have had a training in a general hospital? Dr. BOND said that the Board had recommended such training some years ago, and had also urged mental hospital authorities to have, in addition to their resident staff, certain consulting physicians (not mental specialists) and gynaecologists and so forth.

Sir D. DRUMMOND: But you do not suggest that it should be a *sine qua non* that the asylums officer shall have had special clinical experience?

Dr. BOND: We should like to enforce it at once if it were practicable, but I do not think we could get the doctors. It happens quite often now that visiting committees do not get sufficient applications. But I think that the great majority, if not all, are capable of making a good general examination.

Sir D. DRUMMOND: Do you recognize that it is very desirable for every medical officer to have a special training in psychiatry?

Dr. BOND: Not necessarily before appointment, but before he gains any position of seniority.

The CHAIRMAN, at the request of a representative of the National Society for Lunacy Reform (who said that he had thirty witnesses he wished to call), put some questions to the witness. He asked how frequently the Board of Control had to investigate cases of cruelty.

Sir F. WILLIS said that the Board received a great many complaints, chiefly from patients themselves, generally in letters. The cases were always investigated, sometimes by inquiry on oath, and in very few instances—perhaps one in the last three years—were the charges found to be substantiated. In one case only in 1923 a prosecution was undertaken; an attendant was convicted of striking a patient and fined £2.

The CHAIRMAN: How many cases are brought to your knowledge in which there has been cruelty, but dismissal or some other disciplinary action has been taken instead of prosecution?

Sir F. WILLIS: Very few cases, half a dozen a year at the outside. All allegations are followed up, and in some rare cases, when the visiting committee did not prosecute, the Board of Control prosecuted.

The CHAIRMAN: If the patient is ill treated his position is a difficult one; he may not have anyone to appeal to.

Sir F. WILLIS: He could always appeal to the doctor, and, if competent to write, he could write to us.

The CHAIRMAN: Have you ever heard of cases in which the patients were so frightened to complain?

Sir F. WILLIS: That has been stated, but not substantiated.

The CHAIRMAN: Such a thing could conceivably happen.

Sir F. WILLIS: Occasionally the Commissioners in going round are apprised of some case and hold an inquiry there and then, and if the circumstances are very special a sworn inquiry.

The CHAIRMAN next asked whether the medical practitioners referred to in various sections of the Act need have any special qualifications.

Sir F. WILLIS said that in most Acts of Parliament it was assumed that the practitioner knew everything about medicine. He added, in further reply, that the number of persons who had been discharged from detention on the ground that they were not insane when admitted was very small. He had no experience of any cases in which persons not insane had been wrongly detained in asylums. He regarded the existing machinery in the matter of certification and provision with regard to detention as adequately safeguarding the liberty of the subject, but if any additional precautions could be suggested they would be welcomed. He stated further that with regard to curative treatment in mental hospitals his Board had no responsibility—it acted only in an advisory capacity; the responsibility for the treatment of each individual must rest with the medical officers of the institution. If the Commissioners found an institution which was lax in this matter it would report to the committee of the institution concerned, and would investigate further at the end of a short period. The Board could not require that an additional doctor should be appointed or a laboratory provided, but it could and did bring pressure to bear on the medical superintendent, and in the case of a public asylum on the local authority.

This concluded the examination, which had lasted eight hours, of the members of the Board of Control, and the CHAIRMAN stated that they would be called again before the end of the inquiry.

Sir CLAUDE SCHUSTER, permanent secretary to the Lord Chancellor, gave evidence on the legal position of the Lord Chancellor in lunacy matters. He said that the Lord Chancellor's Visitors numbered three—two medical men and one lawyer—and they had to visit at stated intervals all lunatics so found by inquisition, and others in whose property the Lord Chancellor had an interest, and they had to pay special visits when required to get specific information. Their interest was entirely in individuals, not in institutions. The Lord Chancellor's department had also to deal with letters from lunatics, which were numerous and lengthy; some lunatics wrote every day to the Lord Chancellor voluminous essays on their delusions. The witness found it extremely difficult to answer the question whether the jurisdiction of the Lord Chancellor was of any value; it depended on the constitution of the Board of Control. He thought that the Board of Control should include the very highest medical authorities, especially on the subject of lunacy. It was also essential to have on that body an adequate representation of the legal mind, because medical men looked at these matters from a special point of view. Those who, like himself, had to read a number of medical certificates felt that, while the honesty of the certifier could not be doubted, the documents failed to meet the lawyer's requirements because of the inadequate selection and arrangement of facts. Doctors were not trained to express themselves in a way that carried conviction to the legal mind. He did not question the conclusion of the certificates, only the exhibition of the grounds which the practitioner set out. The medical man looked at the matter from the point of view of cure, but the question which the lawyer had to decide on the certificate was whether or not the person should be detained.

The CHAIRMAN: We can hardly expect every practitioner to go through a legal training in order to learn how to prepare a proof of evidence. But in Scotland at any rate all medical men take a course in forensic medicine.

Sir DAVID DRUMMOND: They do in England also.

The inquiry was adjourned until October 21st, when the evidence of witnesses for the Ministry of Health will be taken.

British Medical Journal.

SATURDAY, OCTOBER 18TH, 1924.

MENTAL DISORDER AND THE LAW.

The report published this week (p. 707) of the discussion in the Section of Neurology and Psychological Medicine on certification in mental disorders from the medical and social aspects merits the close attention of the medical profession. As one of the speakers, Dr. G. W. B. James, observed, the subject has assumed fresh importance owing to the appointment of the Royal Commission on Lunacy and Mental Disorder, which has now begun its sittings; and it should be the aim of all doctors, both special and general, to evolve clear-cut and constructive criticism of the existing law.

One matter which must be less vaguely stated than hitherto concerns the type of mental illness which it is considered should be treated without certification in its early stages. Dr. Henry Yellowlees, who opened the discussion, pointed out that a true borderland case does not often become insane—and presumably he here refers to the psycho-neurotic—and that a mild or incipient case is by no means necessarily a curable one. The most recoverable cases are undoubtedly, as he says, the acute forms of disorder: patients who exhibit the most pronounced abnormality of conduct, and who are, therefore, the most certifiable. There is certainly a general impression abroad that if mental cases were treated in the prodromal stages, before the disturbance in behaviour becomes pronounced and certification is inevitable, a number of cases would be cured, and the incidence of chronic insane in the asylums would considerably diminish. This view would appear to be in some measure justified. The general principle that the earlier a disease is treated the greater the possibility of recovery would appear to apply equally to mental disease as to other maladies. It would, however, be a mistake to create the impression that there are specific cures for such conditions as dementia praecox and paranoia (which constitute the bulk of chronic asylum cases) if only they were taken in the early stages. While an arrest or amelioration of such cases is obviously more likely if they are taken in the early stages, yet it must be remembered that an exact diagnosis and definite prognosis is extremely difficult in incipient psychoses.

We do not think, however, that the plea for the treatment of mental cases without certification should be based upon promises of a dramatic diminution of cases needing permanent control in asylums. There is no experience upon which to base such a promise, and a decrease in the incidence of insanity must ultimately depend upon the degree to which the principles of mental hygiene are disseminated amongst the community as a whole. To agitate for an alteration of the law in order that cases described under such vague terms as "mild" or "early" may be treated without certificate would hardly seem to be justified. The psycho-neuroses, mild depressions, psychopathies, and nebulous types with vague psychotic symptoms would appear to cover the cases included under these terms, and there is nothing in the law to prevent them being treated without certificate at present. It is true that there is a lamentable absence of homes to which such patients can be sent, but some do exist, and there is no legal barrier to their multiplication. Many patients are treated, of course, as voluntary boarders, and, as we pointed out in a recent issue, there is no reason why the public mental hospitals should not be permitted to admit cases on a voluntary basis, the principle having been already admitted in one area. It is thus not so much for mild and incipient cases that a radical amendment of the law is necessary, but rather for the acute cases, in which the symptoms are often of extreme severity.

A statistical survey of the patients discharged as recovered from the mental hospitals reveals the fact that a large proportion were under certificate for less than six months, this period including the stage of convalescence, part of which is often spent at home on trial. Furthermore, a considerable number of the recoveries are found to occur in patients who exhibit extreme restlessness, stupor, resistiveness, and confusion, so that they are definitely certifiable and cannot be treated away from home without legal sanction. Such cases are due to a variety of causes—childbearing, lactation, influenza or other toxic illnesses, the stress of adolescence or the climacteric, and environmental difficulties. They are, in many instances, recoverable in the full meaning of the term. They often do not relapse, and lead perfectly normal and useful lives after discharge. It cannot be denied that certification inflicts a very real hardship in such cases, and it must be remembered that these acute and recoverable psychoses occur in patients as young as 17, in women beginning their married life, and in persons in the prime of life holding responsible positions, all of whom are definitely handicapped in after-life by having been certified as insane. We are in agreement with Dr. Bedford Pierce that for such cases certification could be deferred safely, provided that there was no concealment and the hospital or place of treatment was properly equipped. The restraint applied to persons suffering from the acute psychoses would be similar to that applied to the subject of a pneumonic or typhoid delirium, and both groups of mental illness would necessitate similar modes of treatment.

There can be little doubt that in the future there will be an explicit recognition of the fact that, from an administrative standpoint, acute mental illness and chronic insanity involve two distinct problems. Acute mental cases require a hospital, in the ordinary meaning of the term, for their treatment—a hospital differing only in structure from the general hospital, in which the whole resources of modern medicine are available for the treatment and investigation of the patients. A hospital in the above sense is not required for the treatment of the majority of chronic mental patients. What they need is a home in which they can be as happy as possible in view of their psychic disabilities. With such patients every endeavour should be made to provide occupation, amusements, as much freedom as possible, and skilled medical treatment in the case of illness. There should be strict differentiation between the sick, the degraded and disturbed, and the quiet and peaceful patients, so that those who are able to appreciate the amenities of life shall have nothing to jar on their susceptibilities. Actually it is in these directions that progress has been made, and there is no question that the change in the methods of treatment since the lunacy laws were formulated has been very remarkable. Whenever possible the recent admissions are treated in separate

hospitals apart from the chronic cases, and every effort is now made to abolish the prison-like features which characterized these institutions when different conceptions of mental disorder prevailed.

It is on the basis of knowledge acquired by those who are accustomed to deal with mental cases that an amendment of the law is seen to be necessary if further progress is to be made. That the duration of many cases of insanity is brief, that the attack is curable and leaves no traces of abnormality on the personality, and that such patients are amenable to the same methods of treatment as are applied to other illnesses, are facts that should now be recognized by the Legislature, as also the fact that the conditions which made the provisions of the present lunacy law necessary no longer exist. It is only when acute early and recoverable cases are treated apart from irksome legal formalities that the stigma which is now attached to the subject of mental disorder—and indirectly to his relatives—will be removed, and it is only then that the public will learn to look naturally on mental disorder as a disease which, like all other diseases, is open to cure, amelioration, or progressive advance according to its nature and intensity.

NOTIFICATION OF PUERPERAL SEPSIS.

IN April last the Ministry of Health published an elaborate report on maternal mortality by Dame Janet Campbell, senior medical officer of health for maternity and child welfare to the Ministry;[1] we gave an account of it in our issue of April 12th (p. 682), and set out fully the recommendations with which it concluded. One of these recommendations was that in view of the unsatisfactory results of the present notification of puerperal fever, "it should be considered whether amendments are desirable in the existing legal provisions for notification, in order to increase its practical utility, a matter in which it would be useful to consult a competent medical body such as the Obstetrical Section of the Royal Society of Medicine." This invitation has been accepted, and the Sections of Obstetrics and Gynaecology and of Epidemiology and State Medicine of the Royal Society of Medicine have arranged a joint meeting with the Society of Medical Officers of Health on Thursday, November 6th, to discuss the notification of puerperal sepsis. The officers of the Obstetrical Section consider it very desirable that the views of those engaged in general practice, as well as of obstetricians and medical officers of health, should be expressed during this discussion, and any general practitioner not a member of the sections or the society mentioned will be welcomed as a visitor and asked to take part in the discussion.

Another recommendation of the report had reference to the need for improvement in the quality of professional attendance. To attain this it was advised that the education of medical students in the principles and practice of obstetrics and gynaecology should, as recommended by the General Medical Council, be improved, and that midwives should be better trained by requiring a longer period of teaching prior to certification, and periodical post-certificate courses of instruction. As a corollary it was recommended that there should be closer co-operation between the medical practitioner and the midwife, and between the professional attendants and the local authority. Preventive midwifery under the local authority should, it was thought, comprise the ante-natal and post-natal care of all pregnant women by the professional attendant as far as possible, the establishment of maternity centres, and the provision of maternity beds, including observation and isolation beds for the treatment of complicated cases of midwifery and for the accommodation of women whose circumstances do not enable them to be confined safely and suitably at home.

It was further recommended that all maternal deaths due to childbirth and all cases of puerperal infection, whether fatal or not, should be investigated by the medical officer of health. The final recommendation referred to the provision of suitable nourishment for necessitous, expectant, and nursing mothers, to the desirability of extending sickness benefit during pregnancy under the National Insurance Acts, and to the need for widespread educational propaganda by official and voluntary agencies. Sir George Newman, in his prefatory note to the report, pointed out that steps had already been taken by the General Medical Council, the Central Midwives Board, the local authorities, and the Ministry of Health to deal with most of the points made in the recommendations, but observed that there was need in almost all directions for further development of such arrangements.

A few weeks afterwards the Scottish Board of Health issued the report of a Departmental Committee which it had appointed "to inquire into the incidence of puerperal morbidity and mortality in Scotland, with special reference to the causes contributing thereto, and to suggest any remedial measures." A full notice of its arguments and recommendations was published in our issue of May 31st (p. 961), and this article may be consulted with advantage in view of the coming discussion. The Scottish committee urged the importance of ante-natal care and the need for more systematic practical training of the medical student, and discussed the problems presented by the education of the pupil-midwife, the maintenance of the midwife, and the proper functions of local maternity hospitals. In the same issue of the JOURNAL we took occasion to discuss the subject in a leading article (p. 969). It was there observed that if the view of the Scottish committee—that the services of the trained midwife and the doctor are complementary—were accepted, it seemed clear that the charge of normal labour would in future be more and more transferred to the midwife, the duties of the medical practitioner being rather those of ante-natal examination, and of passing patients as normal, or, if abnormal, of referring them to maternity hospitals, and of exercising general supervision.

The joint meeting on November 6th will commence at 8 p.m. at the house of the Royal Society of Medicine (1, Wimpole Street, W.1).

[1] Ministry of Health. Report No. 25: Maternal Mortality. By Janet M. Campbell, M.D., M.S. London: H.M. Stationery Office. To be obtained through any bookseller. Price 1s.

PARLIAMENT AND VACCINATION.

ON September 13th (p. 482) reference was made in these columns to the new Vaccination Order issued by the Minister of Health, and to the attitude of anti-vaccinationists towards the Minister. He is now receiving from them exactly the kind of thanks for his concession to their demands that he might have expected had he known them better. In their official organ they say frankly that whatever his convictions may be he is fortunately amenable to pressure. And so they have exercised pressure. "After receiving

a second letter from the League," and another, at the instance of the League, from the Labour party's executive committee, " Mr. Wheatley let it be known that if the League continued to press the matter he would be willing to restore the Form." Thereupon another League letter was sent to him, " and a few days later Mr. Wheatley issued his Order." But as for Mr. Wheatley himself, his views, whether for or against vaccination, are " without value or importance." Especially " his readiness, as avowed to Mr. Abbott, to favour compulsion for everyone in face of an epidemic is thoroughly exasperating, and shows him to be equally ignorant and wrong-headed on the subject."

The British Medical Journal has, of course, nothing to do with party politics, but from the spectator's point of view there is a striking resemblance between the attitude of the extremest Russian Bolsheviks to Mr. Ramsay MacDonald and that of the Antivaccination League to Mr. Wheatley. Clearly he is not an antivaccinationist, and he should begin to realize that no half-way concession will suffice to placate such a cult. His knowledge of Glasgow compels him to believe in vaccination for the control of small-pox, and that belief condemns him in their eyes, so that while they accept all he gives them they continue to denounce him, and they deliberately make public the means they have used to effect their purpose, whatever the influence of that publicity may be on Mr. Wheatley's reputation in politics. Meanwhile the Minister of Health determinedly holds his peace on the merits of the matter, and just before the dissolution flatly refused to rescind the Order. This refusal to be drawn into discussion was perhaps his most politic course in the circumstances. He knows he has made a blunder, and he acts on the old adage, " Least said soonest mended." But the lesson, it may be reasonably assumed, will be remembered by him, and he will not be in a hurry again to try to reconcile the irreconcilable.

Now that a general election has come upon us, the machinery of the Antivaccination League is doubtless working at full speed to entrap candidates who may make pledges about the Vaccination Acts in the hope of securing votes from persons who, in the narrowness of their outlook, put aside great national and imperial questions and concentrate on the one limited subject of the vaccination law. Candidates, if they have time in the turmoil of the contest to give any real attention to the matter, should be warned by Mr. Wheatley's unhappy experience. Whether he ever gave a definite pledge we do not know, but if not his treatment by the League is all the more a warning of what may be expected.

Recently in the newspapers there has been some protest in advance as to replying to sets of questions on many matters which, if or when the time comes for Parliament to deal with them, should be decided on their merits, in accordance with relevant circumstances and considerations. Candidates will be wise to accept the advice given by Mr. Baldwin in the House of Commons last March not to answer *questionnaires* at all—it is perhaps significant that those who issue such documents have to go to a foreign language for a term. A firm refusal to commit himself hastily may lose a candidate a few votes here and there, but the display of caution and strength and independence will count for far more than easy or thoughtless pliability in the estimation of electors capable of weighing up the qualities of those who appeal for their support.

THE MAUDSLEY HOSPITAL.

The first annual report of the superintendent of the Maudsley Hospital is one of very special interest. Fifteen years have passed since the munificence of the late Dr. Henry Maudsley rendered possible the building of a hospital for recoverable cases of mental disease. At first the difficulty of finding a suitable site, and later the war, delayed the fulfilment of his project; but the delay was not without gain, for powers were meantime obtained under the London County Council Act, 1915, allowing patients requiring treatment to be admitted at their own request and not under certificate. This would have had Dr. Maudsley's cordial concurrence, enhancing as it undoubtedly does the opportunity for the early study of mental disorder and its treatment under conditions the most favourable to recovery. The further question arose whether any other than voluntary patients should be admitted; and it was decided to restrict the admissions to patients of this category, so that no certified patient is accepted at the Maudsley Hospital, nor is any patient ever certified there. This latter provision was bound, of course, to give rise to some little difficulty, owing to the fact that a voluntary patient has the right to leave within twenty-four hours after giving notice to that effect. Since this may happen in a case where there has been a sudden change for the worse, it is an essential condition of admission that some responsible party should agree to take care of the patient in such a contingency. This same party likewise guarantees the payment of hospital charges. These charges vary according to whether the patient has or has not a legal settlement in the County of London. If he has, the charges are according to means; if not, the full maintenance rate, amounting to about £5 a week, must be paid. The question of medical suitability also arises; it can generally be decided by a telephone conversation with the practitioner, but in any event the decision as to suitability rests with the medical superintendent. Formalities are reduced to a minimum, and details of the steps preliminary to admission have been widely circulated. The Maudsley Hospital has two chief purposes—research into the causation of mental disease and into its early treatment. These are not coincident, but are not necessarily mutually exclusive. Cases are accepted often because of the unique opportunities they present for study of their causation, quite apart from their chances of recovery. Such facts have to be borne in mind when the results of treatment are examined. The report is cautious in tone and comprehensive, and Dr. Edward Mapother, the medical superintendent, claims little. Bearing in mind the dual purpose of the Maudsley Hospital, he has observed a judicious discrimination in the selection of cases, nor does he hesitate to say that even though the aim of the hospital were a single one—treatment to recovery of the maximum number—good results would indicate mainly the capacity for prognosis of the medical staff. Many forms of treatment have been pursued. Especially interesting was a case of bronzed diabetes with profound confusion, where treatment by insulin brought about practically complete physical and mental recovery, although there was no marked hyperglycaemia but definite glycosuria. The malarial treatment of general paralysis of the insane has been carried out in several cases without any conclusive results. Various forms of psycho-therapy have been employed. Dr. Mapother, although sceptical of the tenets of any recognized school, none the less insists that this method yields results that cannot otherwise be obtained. Research work was handicapped at the outset by the necessity for organizing the general work of the hospital; but later numerous investigations have been carried out under the direction of Dr. Golla, director of the pathological laboratory. These include the determination of basal metabolism in cases of

dementia praecox, investigation of the oculo-cardiac reflex, some abnormality being noted in the majority of cases of the psychoses, and testing of the emotional response as indicated by the psycho-galvanometer. The researches are of great promise, and are being actively prosecuted. During the first year 1,012 cases have attended the hospital; of these 452 were admitted as in-patients. Of the latter the majority came via the out-patient department. About half the total number of admissions were sent in by general practitioners after consultation with the superintendent. This shows how real an advantage the Maudsley Hospital is to the busy practitioner. Altogether the report makes stimulating reading. The work which is being undertaken in the Maudsley Hospital is one of singular promise.

PROTECTIVE GLASSES.

The subject of the presidential address of the new president of the Ophthalmological Section of the Royal Society of Medicine, Sir Arnold Lawson, of which a report will be found at page 719, is of very general interest, and one on which the opinion of many practitioners must frequently be asked. Magazines, newspapers, and railway posters are all advertising the advantages to eyesight of special forms of spectacle glass designed to protect the eyes of the wearer from the "damaging" effects of ultra-violet rays; and many persons are becoming obsessed with a fear of the mysterious influences of these rays. These rays are potent when they are in any volume, as in the rays of an exposed arc-lamp, or in the clear atmosphere of the high Alps. In such situations exposure without protection is likely to cause injury to both eyes and skin; but the effects are transient, and these special conditions are rarely met with by the ordinary city dweller. For him the murky atmosphere of the smoke-laden canopy of heaven cuts off far too much of the virtues of sunlight—a fact that has been brought home to us by recent researches upon the pathology of rickets. For the great majority of the population specially tinted or protective glasses are quite unnecessary; where spectacles need to be worn the ordinary glass of the lenses gives sufficient protection. If in the neurasthenic more is needed, then the protective, but scarcely tinted, glass devised by Sir William Crookes gives all the additional defence needed. When genuine pathological processes occur within the eye, further protection is both valuable and necessary. For the special conditions of exposure to sunlight at high altitudes, or for the industrial risks of furnace workers, welders, and the like, special forms of protective glass are imperative. It is to be hoped that the address of Sir Arnold Lawson will do something to dispel a fear engendered by the commercial exploitation of scientific advances designed for definite purposes. So far as town dwellers are concerned, far greater benefits are to be found in the proper arrangement of lighting, both natural and artificial. Conditions have been vastly improved in schools; but it is still common to see clerks working at desks facing the window, and therefore in conditions that would try perfect eyes. In the opposite case windows are often dirty or overshadowed by screening walls, so that on even bright days artificial light has to be used to supplement the inadequate daylight. Further, the spread of the use of high-power illuminants, excellent in themselves, has brought real disadvantages to the office workers, since these new lights are used in ways which produce a maximum of irritation to the eyes instead of a maximum of comfort. New wine must be put into new bottles; and with new lamps new shades, new hangings, and new arrangements are needed, or else the eyes of the users will be as uneasy as the old wine skins strained by the fermentation of the young wine. Much of the demand for protective glasses comes from clerical workers, and it arises from the neglect of these simple precautions in lighting; the use of the protective glasses does not, in fact, attain the end sought.

MEDICAL CONFERENCE IN HONG-KONG.

At the invitation of the Hong-Kong and China Branch of the British Medical Association, the China Medical Missionary Association will hold its biennial conference at Hong-Kong from January 21st to 28th, 1925. Delegates have been invited from Great Britain, India, and America, and it is hoped that eminent authorities in different branches of medicine and surgery will address the conference. Board and lodging for members is being provided at a nominal cost, and private hospitality will be available to a limited extent. It is worthy of special note that the two bodies about to meet in conference—the Branch and the association—were founded independently in the same year—1886—and that the University of Hong-Kong, in whose buildings the meetings are to be held, had its origin in the foundation of a missionary hospital. Western medicine was first introduced into China in the early part of the nineteenth century, and the progress subsequently made has been almost entirely due to the work of medical missionaries. Since 1915 a considerable amount of assistance has been received from the China Medical Board of the Rockefeller Foundation, the chief work of the latter being the creation of the present Peking Union Medical College, which was originally a missionary effort. The China Medical Missionary Association was founded in 1886, and has at present about 600 members, chiefly British and American missionaries, and certain Chinese and other doctors who are in sympathy with its work. The association meets biennially in different cities of China, but this is the first time it has visited Hong-Kong, the South China branch of the association having its headquarters at Canton. Since 1887 this missionary association has published the *China Medical Journal*, which until 1915 was the only journal of Western medicine appearing regularly in China; in the latter year, however, a National Medical Association of China was established for Western-trained Chinese, and a medical journal was associated with it. The Hong-Kong and China Branch of the British Medical Association was first established in 1890, but it actually grew out of the Hong-Kong Medical Society, which was founded in 1886, with the late Sir Patrick Manson as its first president. It now has 158 members, of whom 29 are resident in Hong-Kong. In 1887 the Alice Memorial Hospital was opened under the auspices of the London Missionary Society, and the Hong-Kong College of Medicine was founded, with Sir Patrick Manson as its first dean. From this College of Medicine came the University and its medical school in 1912, with the first appearance of its medical society's journal, the *Caduceus*, in 1922. The conference provides an excellent opportunity for this school to demonstrate its possibilities as a centre of the spread of Western medicine, more particularly in South China. These possibilities have already been recognized by the Rockefeller Foundation, which provided 750,000 dollars for the endowment of full-time chairs in medicine, surgery, gynaecology and obstetrics. The China Medical Board contributes also towards the scholarship fund for students, enabling them to come from the Canton Christian College to the University for their medical course. The conference will provide, moreover, an opportunity for the British and Chinese in Hong-Kong to appreciate somewhat the work that is being done for Western medicine in China, and will encourage them to make some contribution in return for the commercial and other benefits which they derive from residence in Hong-Kong. It is proposed to place the sectional meetings of the conference under the control of a joint chairmanship representing the British Medical

Association and the China Medical Missionary Association. The following sections have been formed: general medicine; therapeutics; pathology; general surgery; ophthalmology; ear, nose, and throat; radiology; obstetrics; anthropology and anatomy; physiology; hygiene and public health; parasitology; naval and military hygiene. In the great hall of the University arrangements are being made for the exhibition of instruments, drugs, medical publications, food materials, and hospital apparatus. The joint honorary secretaries of the conference are Professor J. L. Shellshear of the University of Hong-Kong, representing the British Medical Association, and Dr. James Maxwell of Shanghai, representing the China Medical Missionary Association.

A PATENT METHOD FOR THE ENCOURAGEMENT OF SCIENCE.

Dr. Fritz Warschauer, who describes himself as a patent agent of Berlin, requests us to publish a note of a lecture he gave lately to the Deutsche Naturforscher und Aerzte at Innsbruck. We will do so with pleasure, because the matter of the lecture must have been no less interesting to the natural philosophers and doctors of Innsbruck than Dr. Warschauer's English report is to us. It appears that in this lecture "the bacteriology has been, for the *first* time, discussed minutely from the point of view of the German Patent Act." The lecturer showed "on hand of numerous specifications that the German Reichs-Patentamt has, in acknowledging a justified claim, granted patents for bacteriological process." Formerly an invention was considered patentable in Germany "only if it related to mechanical or chemical treatment or working up of raw materials, viz., if by technical means a technical effect was obtained." It seems, however, that "in praxi the Reichs-Patentamt has given up this antiquated notion, probably in consideration of the development of the bacteriologic science, and by a recent decision it has expressly acknowledged that processes and methods are patentable which utilize the vital proceedings of nature." We are sorry that Dr. Warschauer has not sent us the list, "combined by the lecturer," showing that "many famous scientists and leading chemical factories are inventors and proprietors of the bacteriological patents." Our ill-paid scientists should be grateful to Dr. Fritz Warschauer for his message of hope. Why not draw royalties instead of invoking State assistance? The bacteriologist of the future, lapped in luxury, deriving from a patent cure-all polyvalent serum an income that even Jackie Coogan might envy, will look with pity upon the wasted opportunities of pre-Warschauer workers. And he will have the added satisfaction that, by retiring early on the proceeds of his world-wide patent, he will make room for other aspirants to fame and fortune, thereby encouraging the pursuit of science.

INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE.

As we announced briefly last week, the fifth International Congress of the History of Medicine will be held at Geneva from July 20th to 25th, 1925, under the patronage of the Medical Society of Geneva. The president of honour is Sir D'Arcy Power, K.B.E. (London), and the vice-presidents of honour are Dr. P. Capparoni (Rome), Dr. D. Giordano (Venice), Dr. E. B. Krumbhaar (Philadelphia), Dr. Laignel-Lavastine (Paris), Dr. J. G. de Lint (The Hague), Dr. A. Patey (Geneva), Dr. J. D. Rolleston (London), Dr. Charles Singer (London), Mr. C. J. S. Thompson, M.B.E. (London), and Dr. Tricot-Royer (Antwerp). The president of the congress is Dr. Charles Greene Cumston (Geneva). The vice-presidents are Dr. Ernest Wickersheimer (Strasbourg) and Professor Andrea Corsini (Florence). The general secretaries are Drs. A. de Peyer and Emile Thomas (Geneva). The treasurer is Dr. Edouard Schauenberg. Subscriptions for members will be 15 Swiss francs, for associates 10 Swiss francs; these should be sent to the treasurer at the office of the general secretariat, 20, rue Général Dufour, Geneva. Members will be entitled to a copy of the *Proceedings* of the congress when published. A preliminary programme of the proceedings will be issued about December 1st, 1924, and can be had on application to the general secretariat. A cordial invitation is extended to members of the medical profession interested in the subject to become members and take part in the sessions of the congress.

PETER LOWE'S "CHIRURGERIE."

An exceedingly rare Elizabethan surgical textbook is being sold at Messrs. Sotheby's on October 28th—namely, a copy of the first edition of "The Whole Course of Chirurgerie, wherein is briefly set downe the Cause, Signes, Prognostications and Curations of all sorts of Tumors, Wounds, Vlcers, Fractures, Dislocations and all other Diseases, usually practised by Chirurgeons, according to the opinions of all our auncient Doctoures in Chirurgerie. Compiled by Peter Lowe, Scotchman, Arellian, Doctor in the Facultie of Chirurgerie in Paris, and Chirurgian ordinaire to the most victorious and christian King of France and Navarre." A note on Maister Peter Lowe, with a reproduction of his portrait at the Royal Faculty of Physicians and Surgeons of Glasgow, appeared in our issue of July 8th, 1922, (p. 59). Only one other copy of this edition of 1597 is on record; and only two copies exist of the second edition of 1611, one of which is in the British Museum. It was printed in London by Thomas Purfoot, and incidentally throws light on the bibliography of another book, Norden's "Speculum Britanniæ," published in 1593; for a leaf of this latter book is bound in at the end of Peter Lowe's textbook, which makes it very probable that Purfoot printed for Norden also, whose well known "Speculum" contains no clue to the printer. At the end of the textbook proper Lowe appends several pages of the "Presages of the Divine Hippocrates." He dedicated the work first to King James and also to Lord Sempill; both dedications are dated April 20th, 1597.

THE GENERAL ELECTION.

As the nominations for the forthcoming general parliamentary election take place on Saturday, October 18th, it has not been possible to compile a complete list of medical candidates. We understand that the following members of the medical profession will offer themselves for election:

Dr. C. Addison (Lab.), Hammersmith South.
Dr. Ethel Bentham (Lab.), Islington East.
Sir George Berry (Con.), Scottish Universities.
Sir John Rose Bradford (Con.)
Dr. F. G. Bushnell (Lab.)
Dr. E. G. Graham Little (Ind.)
} University of London.
*Dr. W. A. Chapple (Lib.), Dumfries.
Dr. Stella Churchill (Lab.), Hackney North.
Dr. R. Dunstan (Communist), Birmingham West.
*Dr. Walter E. Elliot (Con.), Glasgow, Kelvingrove.
*Dr. F. E. Fremantle (Con.), St. Albans.
Dr. O. Gleeson (Lab.), Portsmouth North.
*Dr. L. Haden Guest (Lab.), Southwark North.
*Mr. Somerville Hastings (Lab.), Reading.
Sir Henry Jackson (Con.), Wandsworth Central.
Sir Richard Luce (Con.), Derby.
Dr. J. J. Lynch (Ind. Lab.), Walsall.
Dr. I. H. MacIver (Lab.), Argyll.
Dr. H. B. Morgan (Lab.), Camberwell North-West.
Dr. A. Salter (Lab.), Bermondsey West.
Dr. Laura Sandeman (Con.), Aberdeen North.
Professor Thomas Sinclair (Con.), Queen's University, Belfast.
*Dr. G. E. Spero (Lib.), Stoke Newington.
Dr. T. Watts (Con.), Manchester, Withington.
*Dr. J. H. Williams (Lab.), Llanelly.
*Lieut.-Colonel T. S. Beauchamp Williams (Lab.), Lambeth, Kennington.

Candidates who sat in the recent Parliament are indicated by an asterisk.

UNIVERSAL CURES, ANCIENT AND MODERN.*

BY

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ANY general discussion of quackery is far too big a subject for a single paper.

This paper is confined to certain universal cures, brought forward by men of considerable medical knowledge, who nevertheless appear to have genuinely believed that they had discovered a universal cure for disease. Most of the cures discussed appear to have some real or supposed connexion with electrical phenomena.

Francis Anthony Mesmer.

During the last two centuries there has been a general tendency for universal cures to be connected with electricity and magnetism. About 1750 a widespread idea was established that the mysterious new phenomena of electricity and magnetism were manifestations of a force which, if properly applied, would act as a remedy for all known diseases.

This vague popular idea was first exploited on a large scale by Francis Anthony Mesmer (1733-1815). Mesmer started with an interest in astrology, and wrote his thesis for the M.D. of Vienna on the subject of the influence of the planets on the human body. He next spent many years experimenting with the Imperial astronomer Père Maximilian Hell on the effects produced by magnets when applied to the diseased body, and he attained considerable success by practising in Vienna along these lines. He discovered, however, that he could influence patients without magnets and even without touching them, and thus developed a form of treatment by suggestion. Professional jealousy drove him from Vienna, and he went to Paris in 1778, where he attained sensational success by methods which really consisted in treatment by suggestion reinforced by an imposing display of imitation electrical apparatus. Like most enthusiasts who believe that they have discovered a universal remedy, Mesmer expressed the utmost contempt for orthodox medicine, and resolutely refused to submit his apparatus to any form of test.

The measure of his success in Paris is indicated by the fact that he was supported by a large number of doctors, headed by Dr. D'Eslon, President of the Medical Faculty of Paris; moreover, he is said to have made £16,000 in fees in two years, and the Government offered him a pension of about £1,000 a year provided that he established a clinique magnétique and instructed three State-appointed persons in his methods. Mesmer refused this offer, but in 1783 a number of well-to-do persons subscribed a total of about £14,000, in return for which Mesmer agreed to instruct them as pupils.

Mesmer therefore enjoyed the support of a large and powerful section of Parisian society, but his methods soon found imitators, and the wholesale exploitation of hysteria forced the Government into action. A strong commission was appointed, including amongst its members Lavoisier and Franklin. After five months' inquiry the commission decided that Mesmer's apparatus was incapable of producing any electrical or magnetic effects. They admitted that patients were profoundly affected, but thought that more harm than good was likely to be produced, and recommended the suppression of Mesmer's practices.

The most interesting points about Mesmer's success are as follows: he really did discover something—namely, the extraordinary effects that suggestion can produce in disease; on the other hand, he firmly convinced both himself and his patients that a complex and imposing apparatus, his famous tub, possessed marvellous powers of healing by the magnetic force it exerted, and yet the tub was incapable of producing the slightest electrical effect of any kind. The general similarity between Mesmer's tub and Abrams's oscilloclast is very striking.

James Graham.

James Graham had a fair knowledge of medicine: he studied at Edinburgh and may have taken his degree there. He picked up some knowledge of electricity in America. In 1780 he returned to Europe, and practised in London and Bath, and also at Aix-la-Chapelle. He exploited electricity as a cure for all diseases; he apparently had a fair amount of knowledge of the subject, for he had constructed to his own design some unusually large electric friction machines, and apparently produced quite impressive sparks.

He converted a large house in the Adelphi in London into one of the most remarkable palaces of quackery that has ever been known. This Temple of Health was furnished throughout with most lavish ornateness: statues, armour, painting, immense pillars and globes of glass, remarkably arranged plates of burnished steel, and electrical apparatus of every description were included in the decorations. The general effect was intensified by soft music from an invisible orchestra and perfumes of spices. The chief shrine of the temple was the Grand Apollo Apartment; this contained a throne, and above the throne a crown was suspended from which electric discharges could be produced. Patients were treated by being placed on the throne and having electric discharges played upon them.

In addition to the above methods of treatment, Graham claimed that by means of electricity he could extract from drugs etherial extracts that were cures for all known complaints and which were indeed practically elixirs of life. For a constant supply of these medicines the modest fee of £1,000 paid in advance was demanded, and it is known that this sum was paid by several persons.

Graham was a tall handsome man of commanding presence and he reinforced the attractions of his electric sparks by providing a strong sex interest. He gave a lecture on the cure of sterility, with an entrance fee of six guineas; and a contemporary reports, "He uses the plainest language in dealing with the parts concerned with generation, yet ladies as well as men crowd to hear him without scruple." Graham issued his lecture in pamphlet form at the price of a guinea, and even by modern standards it must be ranked as remarkably obscene.

Extra attractions also were provided at the lectures, for Emma, the future Lady Hamilton, is said to have served as a nude model in his lecture on health. In addition, Graham's temple contained the famous piece of apparatus, his "Celestial Bed." This was an ornate couch around which electric discharges could be produced. The bed was guaranteed as a cure for sterility, and couples were allowed to use it on payment of a fee of £50.

There is, however, another side to his character, for he gave very sound hygienic advice to his patients, recommending cold baths and fresh air, ideas that were then extremely uncommon. Moreover, Graham was a religious fanatic, and throughout his writings one finds declamations against war, and appeals for religious toleration blended with a kind of deism.

In the late years of his life Graham became insane. Southey called him "half enthusiast, half knave." Graham is chiefly interesting as a blend of religious enthusiast and obscene charlatan, and his writings are a proof of how complex and contradictory are the motives actuating the unbalanced minds of the discoverers of universal cures.

Elisha Perkins.

The vogue of Perkins tractors is, I consider, the most interesting example on record of the sudden rise and fall of a universal delusion regarding a universal cure.

For many years Perkins, who was the son of a doctor and a graduate of Yale, lived as a successful practitioner in Connecticut; he was a man of fine physique and remarkable for his untiring energy. He was respected by his fellow practitioners, and acted as chairman of the local medical society. His strong personality and devotion to his professional duties won him a high prestige amongst his patients, and he was very impressed by the amount of benefit that patients appeared to derive from his mere presence.

Magnets and lodestones were still believed at this period to possess medicinal powers—for example, the Royal Society

* Abstract of Presidential Address to the Section of Therapeutics, Royal Society of Medicine. October 14th. 1924.

of Medicine in Paris concluded in 1779 that magnets were therapeutic agents of no ordinary efficacy. Perkins concluded that his personal influence was due to some occult magnetic force, and made experiments in treatment by the application of magnets and metals to the diseased parts. His son, in a short biography, states:

"These experiments, however, for many years added but little to the information he obtained from the first observation. The extreme uncertainty attending the results of all his experiments sometimes almost inclined him to think that this supposed discovery was all a fallacy, and the effects ascribable to imagination. In the year 1796 however he acquired some new ideas on the subject which led to the discovery of the unequivocal influence of certain metallic substances on diseases, and the invention of the metallic tractors."

These tractors were two sticks of metal, about as thick as lead pencils—one looking like brass and the other like steel. They were made of a mixture of various metals, including silver and gold, and were sold for five guineas a pair. Perkins believed that these tractors were capable of benefiting or curing practically all diseases both of men and animals. Their method of application was as simple as the tractors themselves, for it consisted in simply drawing the tractors downwards over the affected part for twenty minutes, and no previous knowledge was apparently needed for their application.

Perkins, who was a man of great energy and enthusiasm, travelled up and down the country demonstrating his invention. He demonstrated the use of the tractors in numerous hospitals, and his methods were endorsed by numerous doctors and professors, and he received the support of many of the leading men of the country, such as governors and judges. His methods naturally met with opposition, and in 1799 he was expelled from the Medical Society of the State of Connecticut on the ground that his patenting of his invention was contrary to professional etiquette.

In 1799 yellow fever ravaged New York, and Perkins went there to combat the epidemic with his tractors; he caught the disease, and died, after five days' illness, at the age of 59. This ending proves conclusively Perkins's absolute sincerity. Yellow fever is not a disease which anyone would encounter with a remedy which they knew to be worthless, but one would have imagined that his death would have raised doubts concerning the efficacy of his tractors. The vogue of the tractors was, however, undiminished. They had been introduced to Denmark by the wife of Major Oxholm, a Danish diplomat, and were investigated by the leading professors of surgery and medicine in Copenhagen, who issued a report stating that "The arguments against animal magnetism would not apply to Perkinism; that the discovery was of importance to the healing art; and that it merited the thorough attention of physiologists." The report contains accounts of the cure of gout, rheumatism, and epilepsy and other diseases, and it was translated into German by Dr. Tode, physician to the King of Denmark.

England was, however, the seat of the greatest triumphs of Perkinism. The movement here was directed by Perkins's son, who came here about 1797; he was not a medical man, but possessed the instincts of a sound advertising agent. The tractors had a tremendous popular success, and were used with equal efficacy on humans, horses, and pet dogs. In 1804 a Perkinean Institute was founded in London, with Lord Rivers as president. The institute enjoyed the support of eight professors of four different universities, twenty-one physicians, nineteen surgeons, and thirty clergymen. It is said to have had a larger endowment than any other hospital in London.

There was, of course, opposition to the prevailing craze. In 1799 a Dr. Haygarth of Bath performed a few experiments with the help of some friends. They explained fully and impressively to a group of hospital patients that a miraculous new remedy had been discovered, and proceeded to treat them with imitation tractors made of wood. The results were striking; most of the patients declared themselves immediately cured or greatly benefited, although one or two stated that the pain of the treatment was so intense that they could not endure it. The hospital was soon surrounded by an excited mob demanding treatment with the new remedy. The experimenters apparently had a rather difficult and dangerous time when they had to explain that the whole business was a hoax.

The opinions of Perkins, junior, on this criticism are best indicated by the following headings of the pamphlet he published in reply.

"All these artifices having in view to prove that the tractors acted on the imagination, the author presented as an extinguisher of such pretensions, above an hundred cures on infants, horses, epileptic fits, tumefactions and inflammations.

"Among the vouchers to these facts were eight professors, in four different universities; eighteen regular physicians; fourteen surgeons; thirteen clergymen, etc.

"Very strange that the diminutive looking tractors should be pretended to have any influence on the imagination of a patient, from the confidence they might create.

"The writers in the *London Medical Review*, whose supply of bread depends on a continuance of the use of medicine in preference to this simple remedy, devote thirty-six pages to dissuading the public from trying metallic tractors.

"Reason for attaching far greater confidence to the testimony of the numerous respectable and *disinterested* characters adduced in this work than to the *interested* writers on the contrary side of the question."

It will be observed that the arguments for and against universal cures have not altered appreciably during the course of one hundred years. The cures always fail completely when subjected to any adequate control or test, and the reply to such criticisms is always the same: a high-minded philanthropist is working for trivial pecuniary rewards to provide mankind with a universal safeguard against disease, and this urgent and all-important work is being obstructed by the selfish opposition of a profession which fears that its livelihood is being endangered.

I hope that I have indicated in this discussion the respect that I feel for Perkinism—the respect that one owes to any perfect example of its kind, even though it be but an example of human folly. Perkinism was a true artistic triumph in that a maximum effect was produced with the simplest possible technique. Half the civilized world was induced to believe that any disease could be cured by drawing over the diseased part two sticks of metal for twenty minutes. I do not think that this record in delusions has ever been rivalled, and I doubt if ever it will be surpassed.

Twenty years later, when the bubble had burst, it still seemed incredible to one who remembered the craze that the whole thing should have been a complete delusion. The idea that an enormous effect can be produced without any rational cause is offensive to the ordinary beliefs of mankind, and with every craze one hears the identical argument that there must be something in it because it is so widely believed and supported.

Perkinism is a remarkably clear-cut demonstration of the falsity of this assumption. There was no discoverable germ of truth in its practice; it achieved enormous popularity in a few years—testimonials as to its miraculous powers were supplied by thousands of persons, including many of the highest professional attainments; finally it fell into utter disrepute with equal suddenness. Like an epidemic the craze rose and raged and waned, without any apparent reason for its course. The only reason for the belief and for the disbelief seems to have been the rise and decline of a wave of delusion, and the whole history of the process shows how completely judgement can be inhibited by mass suggestion.

Albert Abrams, 1863-1924.

Dr. Albert Abrams was a medical graduate of Heidelberg, and he practised for many years as an orthodox practitioner in San Francisco. About fifteen years ago he began to seek for a universal cure for disease, and first brought forward the cult of spondylotherapy. This was a blend of osteopathy and chiropractic with some of the more glaring absurdities toned down. We cannot tell what form spondylotherapy would finally have assumed, for its development was dwarfed by Abrams's next step—his discovery of the famous electronic reactions.

The electronic reactions of Abrams are obtained by two

machines—one a diagnostic machine and the other a curative machine. The diagnostic machine was the original and fundamental "discovery," and I shall only deal with this at present.

The apparatus consists of a container or dynamizer in which is put the drop of blood to be tested; this is connected through four rheostats to the forehead of a healthy medium. The presence of the blood in the dynamizer causes changes in the area of stomach dullness of the medium; these changes are modified or abolished by varying the resistances in the rheostats. With this mechanism Abrams claimed that he could determine the age, sex, religion, race, and nature of disease of the patient providing the drop of blood. Moreover, the diagnosis could be made from either a drop of blood or the handwriting of the patient. For example, the diseases suffered by Dr. Johnson were determined from a signature of the great lexicographer. I think you will agree that these claims are remarkable, for in the first place there appears to be no conceivable relation between Abrams's theories and any of the known laws of physics, chemistry, or physiology. Secondly, the claims appear to be of such a nature that their truth or falsehood could be demonstrated by a few hours' test.

An examination of Abrams's publications shows that his ideas developed step by step from some theories put forward by a Mr. Baines in 1913. Mr. Baines was an electrician who detected the well known skin currents by means of delicate galvanometers and thought that their measurement would provide a means of diagnosing and locating disease. This theory, advanced by an electrician with no knowledge of medicine was developed by Abrams, who had some knowledge of medicine, but apparently no knowledge of electricity. This accounts for the final bizarre form of his theories. Naturally Abrams was able to get equally good results whatever modifications were introduced into his apparatus, and his followers have found the same. On some occasions wires have been disconnected unknown to the operator; the reactions have been unaltered, the reason being that electronic vibrations need not travel along wires. On other occasions specimens have been removed from the dynamizer without the knowledge of the operator and the reactions have continued; the reason is that the electronic vibrations are so powerful that they set up similar vibrations in all material with which they come in contact, and these after-effects can only be destroyed by waving a magnet over the spot.

Abrams soon passed from the diagnosis to the treatment of disease. Starting from the fundamental idea that disease is due to derangement of the vibration rates of the electrons, he sought a method of altering these rates. He noted the fact that a glass resonator could be shattered by a sufficiently strong sound of the wave-length to which it vibrated. He therefore devised his oscilloclast, a form of electrical interrupter. The oscilloclast is intended to pass into the body electronic energy of the same wave-length as the erring electrons in the diseased tissue. Some of the early forms of the oscilloclast were the subject of adverse criticism, because an investigator found that one of them contained four closed circuits and did not furnish sufficient energy from its terminal leads to deflect even the most sensitive galvanometer. This error has now been adjusted, and the patients under treatment can lie and watch an electric light twinkling at the correct vibration rate. Abrams was an American Jew, and naturally, almost instinctively, he made a commercial success of his discoveries. As I have pointed out in other instances of universal curers, the fact that they consider their discoveries priceless and charge accordingly is no evidence that they do not believe in the discoveries.

Abrams's theories violate all the known laws of physics and physiology even more completely than did the theories of Perkins, and I do not propose to attempt any criticism, but will pass on to describe the progress of electronic therapy. As already mentioned, the diagnostic claims of Abrams are such that they admit of proof or disproof with extraordinary ease.

Abrams's doctrines were naturally disbelieved by the rest of the American medical profession as a whole, but since he held a reputable position in San Francisco he was given opportunities to demonstrate the truth of his extraordinary claims. He always refused, and soon there arose a sharp antagonism between him and his followers and the rest of the American profession.

The offer of two machines, one a universal means of diagnosis and the other a universal means of treatment, naturally proved attractive to many persons, particularly to osteopaths, homœopaths, and chiropractors. The great expense of the machines rapidly provided a strong commercial interest in support of the electronic methods, and public interest was sufficiently aroused for a leading popular scientific paper, the *Scientific American*, to offer to undertake an impartial investigation of the whole matter. This proposal was endorsed by the electronists in general and Abrams in particular. The committee of investigation found, however, that it was practically impossible to arrange even the simplest tests, and the investigation, which they imagined would take a few weeks, took nearly a year. The final report has just been published, and it simply states that as far as the committee can ascertain the so-called electronic reactions do not even exist.

The following criticism by the *Scientific American* appears to be completely justified:

> "If in the opinion of the electronic workers, their methods are insufficiently developed at this time to pass a most elementary test such as we propose, then in good faith and through honesty of purpose they should, without delay, suspend their present electronic practice. They should tell their patients that they are not sure just what they are doing. After all human life is too precious to be the subject of raw experimentation of something worse than that as the case may be."

The only means by which the electronists can make this position satisfactory is by submitting their methods to some properly controlled impartial test. Such tests ought to commence with the diagnostic technique, for this is much the easiest to test and this was Abrams's original discovery. The methods of treatment were later developments from the original diagnostic methods. There is now an Electronist Society, I believe, and therefore there is no obvious difficulty in organizing satisfactory and final tests.

The general argument of the electronists is that tests are superfluous, since they can support the truth of their claims by innumerable testimonials from patients cured of every kind of disease, and that they are so busy doing good that they cannot waste time in proving what they already know to be true. Unfortunately for this argument, history fails to record any variety of quackery that has failed to obtain testimonials from persons who have genuinely believed themselves to have been benefited by its methods.

The history of Perkins's tractors surely teaches as clearly as anything can that thousands of honest people can believe sincerely in a universal remedy for disease which is absolutely worthless. As I have said, it is difficult to offer any criticism of Abrams's theories, because these bear no relation to any of the known laws of physics, and therefore there is no basis for argument. They are just as completely outside the realm of inductive science as were Mesmer's tub, Graham's ethereal essences, Perkins's tractors, or Hahnemann's tinctures, and, like these other cults, the electronic reactions have acquired a body of devout followers, most of whom are probably fervent and sincere believers.

In all cases, ancient and modern, we find that the followers of the cult, if left to themselves, can perform miracles daily, but under impartial inspection cannot satisfy the most elementary tests. There is really nothing strikingly new or remarkable in the present electronic vogue; dozens of similar crazes have arisen in the past and will arise in the future. These universal cures simply represent the old quest for the elixir of life in a new form, and arise to satisfy the fundamental craving of the mass of humanity for a miraculous cure for disease. Science has nothing to do with these cults, and they are scarcely influenced by its progress; and since the type of mind that produces them and accepts them both remain constant, one finds from century to century that remarkable sameness between succeeding crazes which I have tried to indicate in this paper.

THE OLYMPIA MOTOR SHOW.

NEW STYLE MOTOR CARS FOR MEDICAL MEN.

By H. MASSAC BUIST.

The International Motor Car Show was opened under the patronage of the King at Olympia, Kensington, on October 17th, and will remain open until the evening of Saturday, October 25th, Sunday excepted. The charge for admission on Monday, Tuesday, Wednesday, and Thursday will be 5s., on other days 2s. 6d. The hours are from 10 a.m. to 10 p.m. on each day. This is the eighteenth show organized by the Society of Motor Manufacturers and Traders, and it is a little unfortunate that again this year it is taking place during the period of a general election.

Visitors will find that drastic reductions have been made in the cost of the cars shown; these reductions have been effected not only to clear stocks, but also because many individual enterprises have embarked on quantity production to an extent hitherto unknown in British practice. The reductions are the more remarkable because the British trade is heavily taxed and is badly situated with regard to labour costs. The trade in the United States is protected by a 25 per cent. import duty, while the French industry is protected by a 62 per cent. tariff, and wages in France are something less than a third of those paid in this country. It is encouraging to find that in many instances British-built vehicles are being sold at prices which are competitive with foreign products. This applies not only to the so-called "light cars," but to middle-size cars also. It is quite a mistake to accuse the British motor industry of want of enterprise; this exhibition shows that it has answered the challenge created by the unequal competition due to the tariff laws of other countries. The result of the broad-minded policy pursued by the Society of Motor Manufacturers and Traders is that the British public, including, of course, medical men, can choose from the cream of the output of motor factories of foreign countries as well as of their own. All that is asked by the British industry in connexion with the present show is that, given equivalent merit at approximately the same prices, the home-built car should be chosen, thereby giving employment to British labour.

New Chassis Types.

This year's show is remarkable in that its prime interest lies not in the introduction of quite new chassis types but in the fact that it is representative of the current motor manufacturing enterprise of all parts of the world. The reasons for the relatively few changes are twofold. In the case of many manufacturers their existing models have been developed in detail because they were introduced as entirely new types either one, two, three, or four years ago. Having proved successful, the practical thing to do is to refine and otherwise perfect them as opportunity offers and further experience is gained. The other reason, unfortunately, is that there remain, quite inevitably, a number of car types, made both by foreign and by home builders, which have been over-produced and which have to be cleared. There is a sound reason for the introduction of each of the new cars. There has never been more commendable designing in general than characterizes the novelties introduced, and this applies to the evolution of the small-engined car, as distinct from the small car of cramped accommodation—two absolutely different things, which American experts still fail to appreciate but which should be fully grasped by even the non-technical British public, albeit this is not yet always the case.

New Cars.

The entirely new home-built types presented for the first time at a motor exhibition are as follows:

20/40-h.p. £20 tax "straight-eight" cylinder 2,493 c.cm. Belsize with four wheel brakes: chassis £695; saloon-landaulette £1,050.

£16 tax 1,991 c.cm. overhead valve six-cylinder engined Marlborough "sports type" chassis with front wheel brakes, £400.

18/55-h.p. £19 tax overhead valve 2,540 c.cm. six-cylinder engined Talbot car with internal expanding front wheel brakes on a six brake system; four speeds, right-hand controlled; complete with five-seater all-weather equipment, £825; seven-seater saloon-landaulette £1,090.

12-h.p. £12 tax 1,699 c.cm. side valve four-cylinder engined Arrol-Johnston, with four wheel brakes: four-seater complete, £360.

15/45-h.p. £16 tax 1,991 c.cm. six-cylinder engined Calthorpe chassis with Rubway contracting band front wheel brakes: chassis £318.

45-h.p. £52 tax 8,458 c.cm. double-sleeve valve six-cylinder engined, 18 ft. 4 in. wheel base, 60 in. track Daimler chassis with four wheel brakes—the largest chassis yet standardized—£1,400.

14-h.p. £14 tax 1,944 c.cm. four-cylinder engined Gwynne chassis: £360; four-seater £410.

9/20-h.p. £9 tax overhead valve water-cooled four-cylinder 1,074 c.cm. engined Rover one-door four-seater, complete with electrical engine-starting and car-lighting as well as all-weather equipment, three-speed gearbox, worm drive, balloon tyres, £185; three-door four-seater on longer wheel base, with *de luxe* body, £215.

14/45-h.p. £14 tax four-cylinder overhead valve (overhead camshaft driven) 2,120.57 c.cm. engined four-wheel braked Rover, with right-hand controlled four-speed gearbox, bevel axle driven, enclosed internal expanding mechanically controlled four wheel brakes, with Dunlop balloon tyres and a mile-a-minute speed capacity: five-seater complete, £550.

In regard to entirely new types from abroad the 15-h.p. sports type overhead valve engined Lorraine may be mentioned; each and all are meritorious cars of their kind, but relatively few of them concern the average medical man. Of the Rover types, the earliest information was published in these columns last month when the chassis were described in detail. For the medical man who wants great powers of acceleration and good hill-climbing capacity the Talbot is worthy of remark. It is economical in fuel, tyres, and tax in relation to its performance and great durability. It is by no means experimental, for it was designed by Mr. Louis Coatalen, the Sunbeam engineer, and its main details are uncommonly like a more up-to-date version of the smallest six-cylinder engined Sunbeam car, which is not now listed. The Talbot is built at Kensington by the new management, and it represents the latest practice of the firm; it is of a type which ought to restore it to the enviable position it enjoyed in the larger middle-size car market before the war.

From Canada come the £22 tax 3,102 c.cm. overhead six-cylinder monobloc engined Buick five-seater, £395, with contracting band front wheel brakes and balloon tyres; also the £28 tax 3,995 c.cm. side valve six-cylinder engined three-speed Studebaker with hydraulically controlled expanding shoe four wheel brakes, four- or five-seater, £415 complete.

13/35-h.p. £13 tax 1,873 c.cm. four-cylinder engined Triumph with balloon tyres, Lockheed-hydraulic four wheel brakes, Enots grease gun lubrication to the chassis, and Marles steering gear, saloon £495 complete.

18/50-h.p. £18 tax 2,850 c.cm. four-cylinder engined Swift with four speeds controlled by the right hand, large diameter rear wheel brake drums equipped with two sets of shoes mounted side by side, one pedal operating in synchronism with Perrot type front wheel brakes and the other (outer) set controlled by hand lever: touring model £595 complete.

America introduces the six-cylinder Lockheed-hydraulic four wheel braked, three speed, semi-balloon tyred Chrysler touring type at £465; and the smallest four-cylinder car made in the U.S.A., the 16/45-h.p. £17 tax 2,378 c.cm. Rollin designed by Mr. Rollin White, of White Steam Car fame, with internally expanding four wheel brakes, balloon tyres, disc wheels, "one-push" oil gun chassis lubrication, system three-point rear suspension: five-seater £343.

From France comes the 15/50-h.p. £16 tax 2,484 c.cm. four-cylinder engined front wheel-*cum*-transmission internal expanding shoe braked Berliet chassis at £450; the 16-h.p. £16 tax 3,016 c.cm. four-cylinder engined Chenard-Walcker with no brake drums on the back wheels, all braking being through Hallot automatic servo on the transmission shaft and on the front wheels in synchronism, on a system which ceases to operate directly the wheels lose momentum, in other words, the moment the wheels become locked; the 20-h.p. 3,745 c.cm. overhead valve six-cylinder engined Hispano-Suiza with the firm's distinctive four wheel braking system; and the £12 tax 10-h.p. 1,552 c.cm. double-sleeve valve engined Voisin with exhaust vacuum controlled Dewandre front wheel brake system.

Examples of New Price Scales.

It may not be good policy to take a car in its first year of production unless it follows, in the main, a design of which the given firm has had long previous experience, and there-

fore embodies nothing experimental. A medical man wants a car that is not merely low in price, but which will not cost him much in taxation: the tyre, fuel, and lubricant bills of which shall be moderate; which shall be a good hill-climber, of reasonably good acceleration, and equipped for all weathers. Hitherto many a small car that has fulfilled most of these requirements has failed in regard to the accommodation for driver or passenger.

It is in this connexion that the most all-round progress has been achieved by the industry, as well as in reducing prices, this year. Take Coventry's contributions alone, and observe the excellent fruit that the pioneer work of the Standard Company is bearing now in other directions. That concern was the first to appreciate that when a small engine is put in a car, if that vehicle is to be useful it must provide full scale accommodation for driver and occupant. This year we find among Coventry's products the 10-h.p. Singer, the 10-h.p. Swift, the 11-h.p. Hillman, the 9/20-h.p. Rover, and so on, all marketed with greater accommodation. That this applies also to Birmingham is shown by the developments in connexion with the 11/22-h.p. overhead camshaft-driven overhead valve Wolseley, the accelerator pedal of which is now placed on the extreme right, thereby affording much more leg room. Other

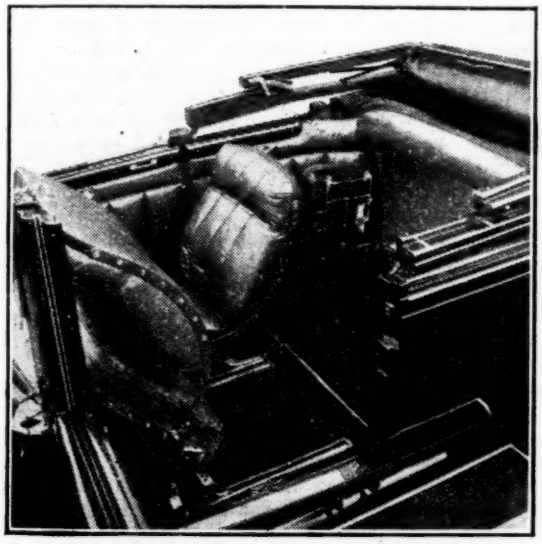

Fig. 1.—De Dion Bouton 12/28-h.p. Coupé-cabriolet 2/4-seater. Interior of bodywork showing occasional seats drawn forward.

examples from various parts of the country could be cited, but a few illustrations of each point must suffice.

It is highly satisfactory to note—and on this point the medical man should be careful to investigate for himself—that where chassis have been lengthened to provide more body space, generally they have been strengthened in section proportionately; this is essential. Many chassis are made wider. The practice of fitting balloon tyres to small cars is almost universal. The popularity of the Dunlop cord type, which scores of manufacturers are standardizing, is observable. Provided the steering is designed properly, this is the class of vehicle for which the balloon type of tyre is really needed, and on which it can be made eminently satisfactory. In connexion with larger scale cars it is to be observed that America favours the use of the balloon tyre of the straight-sided variety; whereas few manufacturers on the Continent follow this example, though they are willing to supply such tyres as an extra to the buyer's order—in other words, on the purchaser's judgement, not on the manufacturers'. Practically the same situation obtains in regard to the industry in this country. This decision is not the outcome of lack of enterprise, but has a sound basis. The Belgian industry does an interesting thing in the case of some of the Minerva cars, which come under the heading of the full scale middle-size car, and which are equipped with what are styled "semi-balloon" tyres; in other words, tyres that are of not exaggeratedly large section nor of pronouncedly low pressure.

Moderate Prices.

While in nearly all cases development in detail is shown, as may be seen in regard to the scale of accommodation, nevertheless the most important appeal is under the heading of price, in which connexion we may take such well known all-weather equipped types as the following, and quote the figures to give an idea of the very widespread efforts that have been made to open a new series of possibilities to the medical man whose means are limited strictly.

£12 tax A.C., £275; £12 tax Arrol-Johnston, £360; Austin "Seven," £155; 8-h.p. Rover, £160; Morris-Cowley 2-seat, £175; 9/20-h.p. Rover 4-seat, £185; 10/26-h.p. Singer 4-seat, £215; 10-h.p. Swift 4-seat, £235; 11-h.p. Standard with Kineton 4-seat body, £200; 11-h.p. enlarged and widened balloon-tyred Hillman saloon, £385; 14/28-h.p. Morris-Cowley 4-seat all-weather equipped with four wheel brakes, £285; £12 tax 2-seat Bean, £335; £10 tax 2-seat Belsize, £280; £11 tax 4/5-seat Bianchi, £325; £10 tax 2-seat B.S.A., £240; £11 tax 2-seat Calcott, £265; £11 tax 2-seat Calthorpe, £235; £8 tax 2-seat balloon-tyred Citroën, £145; £12 tax balloon-tyred 4-seat Citroën, £225; £11 tax 2-seat Clyno, £175; £16 tax 5-seat Crossley, £395; £6 tax 4-seat Daimler, £600; £12 tax 4-seat Darracq, £425; £13 tax 2/3-seat De Dion Bouton, £475; £15 tax 4/6 seat De Dion Bouton, £650; £14 tax Delage 5-seat, £475; £16 tax 5-seat Delaunay-Belleville, £650; £24 tax 5-seat Dodge, £395; £16 tax 4/5-seat Durant, £188; £10 tax 4-seat Enfield-Allday, £350; £17 tax

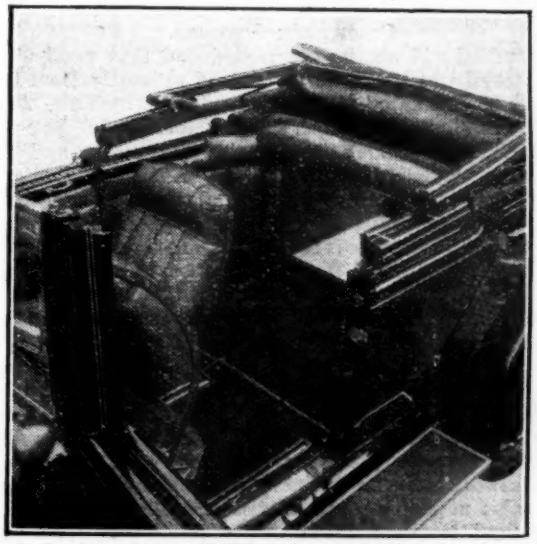

Fig. 2.—De Dion Bouton 12/28-h.p. Coupé-cabriolet. Interior details showing occasional seats folded back.

six-cylinder Essex, £295; £11 tax 4-seat Fiat, £340; £23 tax 4/5-seat Ford, £125; £11 tax 2-seat Galloway, £265; £8 tax 4-seat Gwynne, £235; £11 tax 2/3-seat Hillman, £358; £8 tax 2/3-seat Humber, £240; £21 tax 5-seat six-cylinder Lorraine, £645; £11 tax 2-seat McKenzie, £250; £19 tax 5-seat Overland, £165; £11 tax 4/5-seat Peugeot, £295; £12 tax 4-seat Phoenix, £365; £28 tax 5-seat F.W.B. Studebaker, £415; £12 tax 4-seat Sunbeam, £570; £14 tax 5-seat F.W.B. 14/40-h.p. Sunbeam, £685; £9 tax 4-seat 10/23-h.p. Talbot, £365; £14 tax 4/5-seat 14/40-h.p. Vauxhall, £625; £11 tax 2-seat Wolseley, £275.

The Doctor's "Occasional Four" Coupé.

De Dion Bouton introduces this year, on a 12/28-h.p. four wheel brakes chassis, an "occasional four" coupé type of good interior illumination and notably easy access. The seat beside the driver is tilted forward when it is desired to enter, or to leave, the rear collapsible seats, which are accommodated very neatly when not in service. Ample accommodation is afforded for luggage when the rear seats are not being used. It is to be noted that the English fashion of rear suspension by cantilever springs is employed. Front wheel brakes have been incorporated in De Dion practice for some seasons. This type of all-enclosed body affords two really roomy front seats, sliding independently of one another on rails, and locked at once in the position most comfortable to the occupant of each.

The doors are uncommonly wide, one being provided on each side, so that it is possible to have direct access to the driver's seat. The front seats are built on the scissors principle

so that a light push on the back rest causes each seat to slide forward towards the windscreen, where it lies folded up out of the way, leaving a gap of 18 inches through which to pass to the rear seats. Even in the case of the driver's seat, which, of course, is impeded in its forward motion by the presence of the steering pillar, nevertheless 14 inches of space is available if it is desired to have access to the rear seat from his side. In the rear of the body are provided two folding seats each about 14 inches square. When not in use these slide out of sight into pigeon-holes in the rear squab. Those riding in these seats can face either forward or *vis-à-vis*. Even when two passengers occupy the rear seats still the luggage capacity is adequate, a hinged flap in the boot giving access to a tunnel which is the full width of the body and open at its inner end. Four frameless plate-glass windows, controlled by easy lifting handles and self-locking when in closed position, are provided, together with a V-screen. This, and all other De Dion bodies, are equipped with rubber insulating buffers interposed between the body and the chassis round the dash to prevent rattle. Nine barrel-shaped buffers are employed on this particular body, and ten circular rubbers are interposed between the dash and the body proper. The mounting of coachwork on rubber buffers, originated by Lanchester, is somewhat widely exploited this year.

Coachwork Schemes.

That metal will not be superseded and that wood will be the material which will be eliminated presently from body-building is illustrated by the methods in which the Austin bodies are built of steel. The steel body has been standardized by Dodge in America for years, and it is interesting to note that in the new American Rollin car three-point flexible suspension with single-point attachment at the rear is used to solve the problem of chassis twist, which causes noise in covered bodies. To-day, not only does little labour cost much money, but men who know how to wash down a car without destroying the varnish are not available, because the younger generation has not been trained to this. Hence the interest of what is, in effect, superenamelling, in that the colour is put on together with the varnish. Many very quick-drying systems have been evolved, notably the Dupont de Nemours, whereby a hard enamel-like surface can be achieved on a metal body, and can be washed down and polished without any of the care needed for paintwork with an ordinary superstructure of varnish. With these new methods scratches and other blemishes can be repaired locally without revarnishing the whole body. This is why certain American manufacturers are taking up the principle. It cannot be used on woodwork exposed to the weather. Much of the timber used for making cheap bodies nowadays is relatively green, and, in any case, is cured artificially.

General Tendencies.

The influence of the British Empire Exhibition over much of the detail of design, alike of chassis and of bodies, is shown at this show. Instances are afforded by the 14/40 Vauxhall, the 18-h.p. Armstrong-Siddeley, the Empire Arrol-Johnston model, the redesigned 14/40-h.p. Sunbeam, which is now fitted with six wheel brakes and is a reproduction on a lesser scale of the remarkable 20/60-h.p. type, in all of which vehicles there is ample ground clearance, generous provision of body width, and low centre of gravity. The practice of providing proportionately much wider doors is almost universal. It is to be found even on such cheap constructions as the 9/20-h.p. Rover, the 10-h.p. Swift, and the 10/26-h.p. Singer, and has been always a characteristic of Standard car practice.

Sometimes the widening of chassis is accompanied by the provision of larger brake drums, illustrated in the smaller Singer and the 9-h.p. Rover models. Again, Standard is one of the firms that has not hesitated to borrow a discovery from racing practice by using large diameter brake drums, to the great gain alike of efficiency and economy both of brake linings and of tyre wear. In regard to engine practice, we find the use of the Lanchester vibration damper for balancing the secondary forces in the crank case coming into general practice alike in England and America, because it is commercially a practical proposition.

With few exceptions manufacturers do not introduce larger engined models than formerly, though there is the case of the Daimler, also the Belsize "straight-eight," which latter, however, has only a 2-litre engine. Buick introduces a 20-h.p. six-cylinder type to supplement its existing 27-h.p. type; and it is significant that the 2,300 c.cm. four-cylinder engined Rollin car, brought from America by the designer of the erstwhile White steam car, with four wheel brakes, is called the smallest four-cylinder engined car made in the United States, a point that gives us at once the difference between American and European engine practice, since that engine is three times as large as some of the well established European types.

Four Wheel Brakes.

Though in France I have been working on the idea for twenty years, yet to-day, when most manufacturers are giving attention to it and a large number are actually standardizing some scheme, I realize that not one car builder in three who standardizes cars with four wheel brakes to-day is doing so on lines that are desirable as regards safety, economy, wearing life, and so forth. That ultimately four wheel brakes will be a standard equipment of all cars, including the lightest, because of their light road adhesion, is hardly open to doubt. It has taken more than ten years to get the light car accepted as a permanent type, and I have spent at least as long in advocating the possibility of fitting a small engine into a chassis which provides, nevertheless, full scale accommodation for the occupant. That work is coming to fruition this year in a general fashion, as many new style small cars listed are testifying. We must not expect to reach my ideal, of 1 cwt. of vehicle weight for 1 cwt. of passenger weight transported, for, possibly, twenty years. The vehicle having 1 cwt. of car per 1 cwt. of passenger will be all-metal built—a system wherein the transatlantic manufacturer, turning out, possibly, a million against our hundred thousand, would have no advantage.

Governing Factors in Improvements.

The work of perfecting engines and rendering them flexible goes ahead. Therefore by conventional methods it is possible to make simpler gearboxes, and hence there is less urgent need for torque converters to displace them. In like fashion the coming of the balloon tyre may in part hold up chassis development, for it succeeds in disguising the faults of suspension in certain cars, especially as the average user has not the advantage of handling a couple of score, or more, different makes of motor carriages every year, and thereby keeping in touch with the latest achievements, and so ever recasting his standard of judgement. Many a car that seems to steer well and to ride smoothly to the average user is, as a fact, a third or fourth ranker in classification under those heads. If we could enable buyers—alike among existing motorists who desire new machines, and among entirely newcomers who do not understand the niceties of cars—to know exactly the relative merit of each car in its category, there would not be a dozen types of cars on the world's market to-day, and their users would have the best in each class at a lower price than they have to pay for the worst car to-day, because production of the leading types of each class would be on a scale representing in each country the most economical conditions of production.

Engine volume is no guide to engine performance, and, in general, there is one standard of engine performance in the New World and quite another in the Old. Much more is expected here of an engine than in America. Therefore, to consider an American car cheap because it has an equivalent nominal engine rating with a European is to be led astray. The way to achieve satisfactory motoring is to get the machine that fulfils requirements, irrespective of design. In this country many firms have re-rated their engines—for instance, the Humber, Singer, and the Wolseley—this year. The overhead valve gains many converts, by far the most general system of operation being by a camshaft in the crank case working vertical pushrods and rockers, though there are notable exceptions. Other engine developments include the general spread of

forced feed lubrication. To this end, too, filters have been furnished to the pumps and aluminium pistons are gaining in favour. We no longer consider it necessary to raise the bonnet to start an engine, even in cold weather; hence the general use of stranglers operated from the dashboard.

There is a distinct movement, particularly on behalf of the British industry, to provide change-speed gear and hand brake control levers on the driver's right, this being in response to public demand; instances among small cars are the 10-h.p. Swift and, among middle size, the 14/40-h.p. Vauxhall. Among the middle car classes there is a tendency for British practice to revert from the American to the Continental system in providing four speeds forward, despite the fact that no engines are more flexible than the best English makes, for the reason that America cannot get the Continental scale of power output for volume which our manufacturers do, and that, in general, Continental manufacturers do not provide the flexibility which our best manufacturers do because abroad the demand is mainly for an engine that shall function much like an aircraft power plant —namely, that it shall be able to run slowly as well as at high speed on the straight, clear roads. In this country, on the contrary, with its twenty miles an hour speed limit and its tortuous roads, it is impossible, even if the law be ignored, to go in average country at the full capacity of an engine for more than a few hundred yards at a spell. Therefore we want flexibility always. The use of four speeds assists a flexible engine, particularly in hill-climbing, wherein cars in this country are at a disadvantage because our hill roads are ill graded, whereas hill and mountain roads abroad are graded scientifically. Therefore our hills are relatively more difficult to climb, and it is better to have a greater number of speeds. Nor do drivers in general object to changing gear as much as they were wont to do, because of the increasing use of the plate clutch; also of the provision of better profiles for gear teeth and lighter controls, and the use of clutch stops, whereby much double clutching can be eliminated. The plate clutch is a British invention which is being taken up now all over the world.

Better Chassis.

In regard to chassis construction, the fabric universal joint for the propeller shaft—the hardest worked of any on a chassis—finds an increasing number of users to the great saving of expense. Some manufacturers who have used these joints in the past are making them of more generous proportions this year, a point which newcomers would do well to note. Apart from cheapness, these joints have the advantage of not needing lubrication.

Disc wheels are not making much progress in use on small cars; but an interesting example of their introduction to some of the most expensive vehicles is afforded by Lanchester. Many manufacturers are using lower frames: an instance is the Austin 20-h.p. model with Carlton body, giving a large, well lit interior of exceptional proportions and very easy of entrance. The 14/40-h.p. Sunbeam has proportionately a much lower hung chassis of greater width and excellent lateral stability.

Maintenance is facilitated, as well as efficiency ensured, by the very pronounced increase in the use of grease gun lubrication for chassis, a practice which will unquestionably become universal because it ensures grease being applied to all the points of a chassis which need it, and very rarely get it, unmixed with road dust or grit, by the methods of oiling hitherto used. This grease gun system is adopted by American and Continental manufacturers, including Darracq, as well as by numerous English manufacturers.

Front axles have undergone modifications in face of the introduction of front wheel brakes; an instance is the 20-h.p. six-cylinder Wolseley, which is of a correct section. Examples of correctly designed axles in this respect include the 40-h.p. Fiat, the 14/45-h.p. Rover, the 20/60-h.p. Sunbeam, and the 20-h.p. Lanchester—three distinct systems. For the first time the 40/50-h.p. Rolls-Royce is shown with front wheel brakes of a very special design and fair performance, as I found in trial. The firms marketing front wheel brakes as standard include Austin for all models, Lanchester, the new 12-h.p. Arrol-Johnston, as have the 14/45-h.p. Rover, and many other quite new types. Vauxhall extends the principle, hitherto standardized on the 30/98-h.p. type, to the 23/60-h.p. type. Some manufacturers like to couple up the transmission with the front brakes, and to keep the rear wheel brakes independent. In France there is the Chenard-Walcker chassis with no drums on the back wheels, a scheme that has been copied in that point by one American manufacturer. Front wheel brakes are optional on certain Armstrong-Siddeley, certain Crossley, certain Daimler, the 14-h.p. Standard, the 14/28-h.p. Morris-Oxford, and on the side valve four- and six-cylinder engined Fiat models, and among very many others.

Prices of Foreign Cars.

To show that reductions in prices are not confined entirely to British makers, the 15/40-h.p. 2-litre engined Bianchi chassis is now listed at £395, the reduction of the different models complete with coachwork ranging from £80 to £160. The three-quarter English-built coupé body on this is listed at £670; the four-seater all-weather English body at £715 complete; this is also the price of the English-built four-seater saloon. Bianchi displays original practice in supplying forced feed lubrication to the gearbox, gaining power and reducing noise. The quite new 15/50-h.p. four-cylinder engine is of the overhead valve type, and Perrot automatic type four wheel brakes are provided to the chassis on a system that furnishes the car with six brakes in all. Louis Renault, one of the pioneers in standardizing front wheel brakes on really engineering principles, employs them even for the £9 tax £250 8.3-h.p. three-seater type now without any prejudice to the amplitude of the steering lock. This small machine is also equipped with balloon tyres.

Some Popular Cars for Medical Men.

One of the comparatively few British firms to introduce entirely new chassis this year is Calcott, whose 12/24-h.p. type is fitted with an all-weather equipped four-seater body at £375; and the four to five-seater at £525; the three-seater semi-coupé costs £365. The design of the chassis does not differ from well-proved practice, the power being transmitted through a dry plate clutch to a gearbox giving four speeds forward, controlled by the driver's right hand; the back axle is driven by silent bevel gear. The braking efficiency is proportionately much greater than on any former Calcott type. The clean lines of the chassis are commendable, and it should have good wearing qualities. This engine comes within the 2-litre category.

The 11-h.p. Hillman engine has been developed in detail to meet the equipment of the car with "balloon" tyres and of the new wider and more commodious coachwork provided. A better system of lubrication by forced feeding is furnished for the power plant. A gear pump is driven from the rear end of the camshaft to ensure the circulation of the lubricant. In place of a dipper stick for ascertaining the oil level, a convenient two-level tap is fitted, furnished with a handle placed accessibly above the tray between the bearer arms and the side of the power plant. The equipment on this car is very complete, including dash lamps, licence holder, petrol gauge, air strangler on the dash, carpets on the floor, electrical Klaxon horn, windscreen wiper, hood cover, spring gaiters, five-lamp lighting set, and so forth. The four-five seater all-weather body is available at £375 on this pattern.

Standard's introduction of the Piccadilly four-seater saloon on the 11-h.p. chassis at £275 represents a new note in values; as does the £200 five-seater all-weather Kincton body on the same chassis. The £14 tax four-cylinder overhead valve engined Standard chassis is listed at £285, and with Warwick all-weather body at £385. The Pall Mall five-seater saloon on the chassis costs £475 complete. All 14-h.p. Standard types can be furnished with a system of front wheel brakes.

The three-quarter coupé-cabriolet on the developed 10-h.p. Swift chassis is listed at £275, and the four-seater, or the two-seater with dickey, on the same chassis at £235 in each case. The wheelbase of this type has been lengthened by 9 inches, so providing much more leg room and seating capacity. The four-seater models possess three doors, each

of commendable width. The running-boards have been brought much nearer to the ground, and valances added to fill in the space between boards and frame. The springing has been developed to take the more commodious coachwork, and Hartford shock absorbers are standardized.

Italy introduces the 15/50-h.p. £15 tax 2,294 c.cm. overhead valve four-cylinder engined Bianchi, with internal expanding front wheel brakes: chassis £440; 4/5 seater complete £555; also the 50/100-h.p. £45 tax 7,372 c.cm. overhead valve eight-cylinder-in-line engined Isotta-Fraschini, with the firm's distinctive four wheel brake system: chassis £1,395; 4/5 seater complete £1,750.

Accessories.

The Accessory Section is by no means the least interesting of the show. It constitutes an exhibition which itself would occupy several days fully to investigate. Though chiefly connected in the minds of the motoring public with the sale of cars and the building of high-grade coachwork for chassis, Mann, Egerton and Company exhibit also (Stand 369) much interesting garage and motor-house equipment, together with clever and attractive fittings for the car. One is a neat smoker's companion. For the thoroughly equipped garage there are bench milling machines, an air compressor and tank, a pressure cleansing tank, a mileage test tank, a grinding machine and attachments, an engine stand, a first-aid equipment, a wheel alignment gauge, and so forth. The M.E. atomizing air valve, exhaust car heater, petrol-oil cans, plug holders and cleaners, are other items of interest.

Those who suffer from cold when motoring in winter should inspect the "everlasting foot warmer and foot muff," exhibited by A. W. Gamage (Stand 258). Of course, this firm shows also an extraordinarily complete range of motor equipment and accessories. The Gemmy flooding-from-the-dashboard device for the carburettor, the Ford-Fixe combined exhaust and inlet washer, and a spare petrol can combined with the foot rest, are shown by Messrs. Johnson, Neal and Co. (Stand 375). Messrs. S. Smith and Sons (M.A.), Ltd. (Stand 429), show the popular K.L.G. sparking plug—used by practically all the competitors in important races—the need for which increases as standard motor car engine efficiency is improved. "Rectaskid" is the name of a thin ball bearing inserted between two main leaves of each road spring, the claim being that it reduces skidding; the principle will be explained to visitors at Stand 269.

Electrical Apparatus and Tyres.

The reputation achieved by Exide batteries is made plain by the exhibit of the Chloride and Electrical Storage Company (Stand 280). There is on view an interesting battery that has been in continuous use for twelve years, taken from the first Cadillac car equipped with an electric engine-starting car-lighting and engine-ignition system, this being the first firm in the world to standardize the electrical engine starter. A redesigned model of the now long proved Lodge priming plug, with a number of distinctive features, is shown for the first time. A new Lodge-Ford plug is among many interesting types that include the smallest sparking plug ever made (Stand 426). Examples of various types of Zenith carburettors, of which over 5 million are in use, include a special model made for rapid fitting to Morris-Cowley and for Morris-Oxford cars. Various technical improvements have been made in the 1925 Zenith, ensuring still greater efficiency and petrol economy; all these devices are now sold complete with filter under the float chamber and an air strangler over the inlet port, ensuring easy starting on the coldest morning (Stand 477).

The Dunlop Rubber Company's exhibit includes the low-pressure, large section "comfort" or "balloon" tyres, evolved as a result of many years' experience, in the course of which admirable restraint has been used, instead of rushing on the market prematurely to meet an anticipated demand. The Dunlop wired-on "balloon" tyre is claimed to be the safest large section type, and the security of the method of rim attachment is made plain by demonstration on the stand. Chevrolet, Swift, Vulcan, and such-like cars, with 31 in. by 3½ in. beaded-edge normal tyres, will take 31 in. by 4.40 in. "balloon" tyres without alteration of existing rims. Of course, the firm continues to make its well known corded tyre types, both of the beaded-edge and of the straight-sided varieties. Among the accessories marketed by this firm is a special jack for use with cars fitted with balloon tyres (Stand 500).

THE VOLUNTARY HOSPITALS IN GREAT BRITAIN.

Work of the Joint Council.

THE fifth annual report of the Joint Council of the Order of St. John and the British Red Cross Society concerning the provincial hospitals of Great Britain has been published.

Dr. F. N. Kay Menzies, director of Hospital Services of the Joint Council, has collected in this report a large amount of valuable information about the work of voluntary hospitals during 1923, and so follows the example of the late Sir Napier Burnett, who originally instituted the issue of these annual reports. He draws attention to the fact that whereas in 1921 the ordinary income of the hospitals failed to meet the ordinary expenditure by £419,135, and in 1922 this deficit still amounted to £74,978, in 1923 the ordinary income exceeded the ordinary expenditure by £213,694. In 1920 only 44 per cent. of hospitals had a surplus of ordinary income, in 1921 this percentage had increased to 51, in 1922 to 57, and in 1923 to 66.

The object of the report is defined by Dr. Menzies as being the presentation of the position of the provincial voluntary hospitals with reference to the facilities available for treatment, the extent to which they are utilized by the community, the annual cost of maintaining these facilities, and the sources and expenditure of the financial resources by which they are maintained. Out of 755 hospitals, with 44,403 available beds, 710 hospitals, including 43,404 available beds, are reviewed in this report. In the London area, which is not included, there are 116 hospitals, with 13,002 available beds; the total, therefore, in Great Britain is 871 voluntary hospitals, with 57,405 available beds. With regard to the finances of these hospitals in 1923, the total expenditure was £6,381,115, and the total receipts £7,689,072. Of these total receipts £7,051,248 was raised by voluntary effort, the remainder being derived from public services (£550,918), and grants from the Voluntary Hospitals Commission (£86,906). These figures comprise both the ordinary and the extraordinary income and expenditure. Dr. Menzies remarks that it is now impossible for any person to maintain the old argument that the voluntary hospital system finds its justification in the fact that by it a vast amount of sickness and suffering is cured and relieved at little or no cost to the public purse. He considers that it should be argued rather that the strength of the voluntary system and the real justification for its continuance should be based upon the fact that this immense volume of work is carried out more efficiently and more economically than it could be by any other known method or system. Comparing the two years 1922 and 1923, it is interesting to note that in the former year 2,090,855 patients were treated at a cost of £4,946,299, whereas in 1923 2,861,306 patients were treated at a cost of £5,162,393. It is thence possible to estimate that the cost of a patient in 1923 works out at £1.80, against the cost of £2.40 in 1922.

In an address delivered last June to the British Hospitals Association, Dr. Menzies attempted to demonstrate the considerable growth of the responsibility of public health authorities in connexion with the provision of treatment for disease, and the full text of his address is published in the report. He now draws attention urgently to the great need of providing greater facilities for treatment of ophthalmia neonatorum and infantile paralysis. He refers to the report of the Departmental Committee on the Causes and Prevention of Blindness (1922), and suggests that it is almost a national scandal that ophthalmia neonatorum should be still responsible for approximately 30 per cent. of all cases of total blindness in this country, not to mention the large number of cases of partial blindness. The disease is eminently curable if prompt and efficient treatment is provided in the earliest stages, but, generally speaking, throughout Great Britain inadequate provision of this kind

is made. Similarly, with regard to poliomyelitis, he adds that the available hospital accommodation is seriously deficient, though there is evidence to show that these cases, if recognized at an early stage and submitted to skilful and prolonged treatment, will greatly benefit, whereas neglecting them results in irreparable and life-long injury. In his opinion, if the voluntary hospital system cannot cope adequately with these diseases, public opinion will insist upon adequate provision being made by public health authorities.

An attempt was made during the year to estimate approximately the sum spent annually upon drugs in voluntary hospitals, and it is believed to be not less than £200,000. An article on economy in drugs and dressings, by Colonel L. W. Harrison, special medical officer for venereal diseases to the Ministry of Health, is published in the report. Colonel Harrison, using the venereal diseases department of St. Thomas's Hospital as an example, indicates that there is still considerable scope for economy in this respect without any sacrifice of efficiency being involved. Dr. Menzies urges similar conclusions in the case of tuberculosis dispensaries and in the case of private practitioners, and suggests to hospital boards of management and their medical staffs that subcommittees might well be formed to investigate the question. The main body of the report is devoted to statistical reports of the volume of work done in the voluntary hospitals, of total receipts and expenditure, of analysis of some of the sources of ordinary income, and analysis of the principal items of ordinary expenditure.

Besides the special articles mentioned above, Mr. J. E. Stone, accountant to St. Thomas's Hospital, contributes a statement of the principles upon which hospital accounts should be based; and Sir Francis Colchester-Wemyss, a member of the Joint Council, briefly surveys contributory schemes, taking as examples those in operation at the Chesterfield Royal Hospital, in Glasgow, the Radcliffe Infirmary, Oxford, and the Royal Hampshire Hospital, Winchester.

England and Wales.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

AT the opening ceremony of the winter session of the University of Durham, Newcastle-upon-Tyne, College of Medicine on October 6th, the address to the students was given by Sir Thomas Horder, Bt., of St. Bartholomew's Hospital. In the unavoidable absence of the President, Sir David Drummond, the duty of introducing the orator to the audience was discharged by Sir Thomas Oliver. In the evening Sir Thomas Horder was entertained to dinner by the staffs of the College of Medicine and of the Royal Victoria Infirmary. The chair was occupied by Sir Thomas Oliver, who was supported by Mr. R. G. E. Mortimer and Sir Joseph Reed, vice-chairman and honorary treasurer respectively of the Royal Victoria Infirmary. In acknowledging the toast of his health, and after alluding to the pleasure of meeting men of the Newcastle School of Medicine, Sir Thomas Horder reviewed some of the methods of medical practice in vogue in these days. He compared British with American methods, and discussed "group work" at length. He did not altogether favour "group work," and he gave reasons for the opinions he expressed. He thought that much more could yet be done in the way of post-graduate teaching. He admitted that in London there were difficulties in providing the particular type of post-graduate instruction needed by medical men visiting this country from the colonies and from the United States. He was in favour of a temporary interchange of teachers, and of a mutual interchange of clinical visits, whereby physicians and surgeons might have the opportunity of seeing the patients in other hospitals, and the students be given the opportunity of observing how the diagnosis and treatment of disease might be approached from other standpoints than those with which their own teacher had familiarized them. He himself had invited physicians from other institutions to visit his wards and to give demonstrations.

LIVERPOOL: ANNUAL MEDICAL SERVICE.

This service will be held at St. Luke's Church on Sunday next, October 19th, at 3 p.m. The Right Rev. A. A. David, D.D., Bishop of Liverpool, will preach the sermon. It is hoped that as many members of the profession as possible will attend, especially as this will be the first address given to medical men by Dr. David since his appointment. The Lord Mayor and Lady Mayoress will be present, and medical men are asked to wear academic dress. The offertory will be made on behalf of the Royal Medical Benevolent Fund. Those medical men who may be prevented from being present are hereby reminded of the objects of this Fund, which needs the generous support of all practitioners. The local honorary treasurer, Dr. J. Ernest Nevins, 32, Prince's Road, Liverpool, will gratefully acknowledge any donations sent to him.

Scotland.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

The opening meeting of the Royal Medico-Chirurgical Society of Glasgow was held on October 3rd, when Professor Archibald Young delivered his presidential address on the limitations of surgery, past and present.

Professor Young, far from taking a gloomy view of the outlook, aimed rather at indicating the directions in which surgery as a science might progress, and the lines along which further research might be pursued most profitably. In a short historical survey of the earlier surgical achievements he referred to an interesting address by Erichsen in 1886, in which the following pronouncement occurred:

> "That the final limits of surgery have been reached in the direction of all that is mechanical and manipulative there can be, I venture to think, little doubt. . . . We have thus reached, in many of our most important operations, the final limit to which surgery can be carried. . . . Art is final, but science is illimitable. We have reached finality in the mere mechanical art of surgery, both as to the expansion of its limits and the precision of its practice. But we are yet on the threshold of the science of surgery."

While such a pronouncement, said Professor Young, made nearly forty years ago, and by one of the foremost surgeons of that day, could not, in view of the notable advances in operative method and technique since that time, be accepted as even approximately correct, it contained, nevertheless, more than a grain of truth, and it emphasized the separate roles and the very different outlook of surgery the purely technical art, and surgery the science. The field of cranial surgery was chosen to illustrate some of the victories over restraints and limitations which had rendered progress difficult if not impossible, and reference was made to perhaps the greatest of such victories—namely, the discovery and elaboration of anaesthetics, and the conquest of microbic infection by the introduction of antiseptic practice and technique. Professor Young then outlined a few of the limitations that still hindered the advance of the science of surgery—the problems of repair of tissues, the manner in which the organs function, and the question of periodicity as a fundamental mode of action; tumour growth; the action of x rays, radium, and irradiation; and many other such problems. He urged the necessity for combined research by all concerned. Before they could hope to set aside materially the restraints and limitations that still remained, they would have to try many lines of research. They must adopt a generous and all-embracing system of collaborative research, by which the experience, enthusiasm, original thought, and varying points of view of many workers, not only in pure surgery, but also in all the allied sciences, might have cumulative weight.

HOUSING IN SCOTLAND.

The Scottish Board of Health has issued a scheme to local authorities on the Housing (Financial Provisions) Act, 1924. This Act provides for a programme extending over a period of fifteen years, and aims at a production in that time of approximately 2,500,000 houses in Great Britain. The amount of the increased contribution from the Exchequer to help local authorities in their building schemes under the new Act will be £9 a year for forty years in urban areas, and £12 10s. a year in rural areas.

For the assistance of local authorities the Scottish Board is preparing model plans, specifications, and schedules conforming with the requirements of the Act, and embodying numerous economies that have been shown to be practicable as the result of the Board's experience in the past five years. Copies of these plans, etc., are obtainable from H.M. Stationery Office, 120, George Street, Edinburgh. It is open to local authorities not only to engage in building schemes themselves, but to assist private enterprise in the provision of houses subject to certain special conditions. The type of house to which the subsidy applies varies to some extent, and the scheme includes two-storied cottages, bungalows, or houses built in flats or tenements. Certain limits of area are fixed—for example, a two-storied cottage must show a minimum area of 620 square feet and a maximum of 950. The houses must be constructed in a satisfactory manner, and must possess an estimated life of not less than sixty years. Although considerable latitude is allowed in the design of the house, the Board points out that the following accommodation can well be provided within the limits specified—that is, a living room of 180 square feet, and three bedrooms of 150 feet, 110 feet, and 80 feet respectivly. Where a parlour is provided some reduction in the size of the living room may be permitted. One very proper and necessary condition needed to render a house eligible for the subsidy is that it must be provided with a bathroom containing a fixed bath.

Steel Houses in Scotland.

Steel houses were first brought to public notice when the Housing Bill came before the House of Lords last July. The matter arose in Lord Weir's speech dealing with the bill, in which he outlined the proposal for the building of 500,000 steel houses in the next five years for the rehousing of our slum population. The Committee of Inquiry, recently established by Mr. Wheatley, Minister of Health, to examine new processes of house construction, last week paid a visit to Glasgow for the purpose of inspecting various types of specimen houses which have been constructed in the area. In particular, the Committee visited the works of Messrs. G. and J. Weir, where they inspected sections for one of the new steel houses. A concrete foundation had been laid down outside the workshop, and this was examined. A short time afterwards, on returning to the position where the foundation had been inspected, the house was found almost complete, the walls having been put up, the floor laid and covered, and the roofing almost finished while the members of the Committee were visiting another part of the works. This house is of the bungalow type, containing living room and three bedrooms, conforming in size to the demand of the Scottish Board of Health, also a larder, coal-cellar, bathroom, and scullery. The outer walls consist of steel plates bolted together. Standard timber units for the frame and joists eliminate the necessity for the employment of a joiner; the inner walls being formed of asbestos composition do away with the necessity for plastering; and the roof being formed of metallic shingles or asbestos slates eliminates the necessity for employing a slater. Further, the water pipes are made of standard lengths of copper piping with screw junctions, so that the skilled plumber is to a large extent also eliminated from the construction. All this standardization makes for great rapidity in construction and diminution in cost. The house in question is produced for a price at the works of £360, but as larger numbers are constructed this cost will in all probability be considerably reduced. Taking into account the cost of delivery and erection, the total cost of the house may be taken meantime as about £450, which is a very considerable saving in comparison with houses built of brick or stone. The life of the house is said to be at least fifty years, and the Scottish Board of Health has already approved of the trial construction of a number of such houses by the Dundee Corporation. With regard to habitability and amenity, the provision of an air cavity between the two layers of wall ensures efficient insulation against extremes of temperature, and any fear which local authorities may have with regard to monotony in the appearance of a great number of such standard houses can be dispelled by judicious planning of the site and lay-out, painting of the exterior, and variation of surroundings. Several individuals and companies are taking an interest in the production of these houses, including Messrs. William Beardmore and Co., Dalmuir, on behalf of the Duke of Atholl, the Glasgow Steel Roofing Company, and Messrs. John MacDonald, Glasgow, and plans of two types and two sizes of houses have so far been provided. One of these houses, produced by Messrs. Beardmore, is to be exhibited at the forthcoming Domestic Welfare Exhibition, to be held in the Kelvin Hall, Glasgow.

St. Andrews Institute for Clinical Research.

At the opening of the winter session at the St. Andrews Institute for Clinical Research Dr. Maitland Ramsay delivered his inaugural address as director: there was a large attendance of practitioners from Fife and from Dundee. Dr. Ramsay, referring to the founder of the institute, Sir James Mackenzie, expressed gratification that his name was still associated with it as president. He then discussed the general principles of clinical research, as enunciated by Sir James Mackenzie. He particularly emphasized the importance of clinical observation, and commented on the tendency to neglect this primary function of clinical medicine and to rely upon laboratory reports in its stead. While these were of great value, they could never replace that accurate observation and weighing of clinical symptoms upon which the older physicians relied. The value of the sensations experienced by the patient was often underestimated, but, speaking as a clinical ophthalmologist, he assured his audience that these were of the utmost diagnostic and prognostic significance in diseased conditions of the eye. He then drew a close parallel between the symptoms of eye-strain and the sensations and disabilities experienced by patients suffering from cardiac inadequacy. In conclusion, he hoped that his audience would take full advantage of the facilities of the institute for recording their observations. Dr. C. E. Douglas of Cupar, the secretary of the Fife Medical Association, congratulated Dr. Ramsay on his address, and expressed his conviction that the work done at the institute was of great practical value to the practitioner. He urged his audience, by their co-operation, to ensure the continued success of the institute.

The winter session is being devoted to the study of renal efficiency. On October 14th Professor D. Waterston gave the first of two papers on the anatomy and embryology of the kidney; the second will be read on October 21st. On October 28th and November 4th Professor P. T. Herring will deal with the physiology of the kidney; the subjects of subsequent discussions will be announced later. All practitioners are cordially invited to these meetings.

Correspondence.

MEDICAL SCIENCE AND GENERAL PRACTICE.

Sir,—The Croydon Medical Society, a small society which has a social as well as a scientific side, has arranged a scheme of monthly meetings during the coming winter which may interest similar societies elsewhere.

A series of lectures on recent advances in their own subjects will be given by recognized leaders in the scientific world of medicine. In this way, it is hoped, direct contact will be established between the laboratory on the one hand and the practical clinical worker on the other.

I think it will be admitted by all that the lack of liaison between the research worker and teacher of medicine or surgery at the present day is lamentable. By the methods now in vogue it takes several years for a knowledge of important physiological facts to filter through even to the bulk of consultants or teachers, and probably at least twenty years before the general public receives the advantage of this knowledge in the form of approved methods of diagnosis and treatment.

Dr. E. H. Starling, Foulerton Professor of Physiology, opened the session with a paper on "Compensation and decompensation of the heart." Reference to the study of a heart-lung preparation was made, and many practical inferences of the utmost value to practitioners present were drawn. Other subjects arranged by the society include pharmacology, applied anatomy, and pathology.

It is felt that infinitely more help is given to the doctor in his work by going back to the fundamentals, rather than by building up a superficial knowledge of minute details of treatment which change as continuously as all fashions do.

—I am, etc.,

Croydon, Oct. 14th. Ernest Cowell.

OBSTETRICS AND LOCAL HEALTH AUTHORITIES.

SIR,—Dr. Louise McIlroy's letter (October 4th, p. 642) is most opportune, coming at the time when the methods of administration by public health authorities of obstetric work are rather rapidly crystallizing to a standard for the country at large. With nearly all her letter and valuable suggestions I agree. The regulation specifying the duty of a midwife when abnormality occurs in her practice, in which the words "a registered medical practitioner" occur, is having an effect now which its framers never foresaw; and in my experience, even in discussions with medical officers of health, as to ways and means of carrying out their supervising work over midwives, it has been used as an argument that, in any given case which might at the moment be under consideration, everything has been done quite correctly because "the registered medical practitioner" had been summoned.

One difficulty that one foresees in these matters is that medical officers of health are not usually expert obstetricians. Who can expect them to be so? Taking the country through as a whole, it is doubtful if as yet they are as a body interested or sympathetic in this work, which is new to many of them. Consequently one hesitates to endorse the suggestion that the obstetrician called in should have his report (which he should of course make) open to the *professional* criticism of the chief administrative officer.

I venture to say that the difficulties mentioned by your correspondent—and they are undoubtedly very real and pressing—will be best met by her four separate suggested remedies, only excepting the expression in No. 2—"whole-time officers"—for it is doubtful in the present state of national finance and with the present attitude of local government bodies to salaries, especially those of medical women in particular, to expect adequate pay to so skilled a practitioner who might be seldom required, without overloading him or her with other duties. Therefore I suggest it would be best to say in that connexion "part-time officers."

With regard to the other suggestions (3) and (4), I believe these would be best brought about through central administrative action; possibly by the Ministry of Health making, for instance, maternity benefit conditional on the patient with serious complications accepting the best skilled assistance offered by the local authorities. In carrying out many of these reforms I think we have here a good opportunity for work by the local medical advisory committees suggested and recommended by the British Medical Association to be formed in all districts.—I am, etc.,

Norwich, Oct. 10th. ARTHUR CROOK.

SIR,—Professor Louise McIlroy's letter is very opportune, and all who have given this subject any thought will warmly endorse the sound common-sense it contains. Ante-natal care is now a proved enormous benefit to the whole community; mothers and infants may truly eat of "the tree of life." Expert attention and advice are there for the asking of any and every expectant mother.

When the labour is due—either a normal one, or premature induction, or Caesarean section, as the case may be—except for the relatively few who can be admitted to hospital the patient receives any help that happens to be available. Up to this point she has been, as it were, under the eye of the medical officer of health—indirectly, it is true. At what may prove to be the most critical time in the history of the case there now comes a most illogical hiatus. Unless admitted to hospital she is "anybody's case." Should so serious a contingency as puerperal septicaemia arise, the patient is legally due to come once more under the eye of the medical officer of health. The vast majority do not, for it is doubtful if any septic cases are notified unless the patient is *in extremis* and the final certification looms near and becomes more than a possibility. This is where the supposed supervision by the medical officer of health of puerperal sepsis becomes a mere farce, and, indeed, can be nothing else so long as this state of affairs prevails. It would appear that the situation is made illogical by the hiatus mentioned above, and which is implied, if it is not specifically stated, in Professor McIlroy's letter.

To be consistent, the health authorities ought either to leave alone ante-natal care and puerperal sepsis and let the whole matter of maternity be organized by some separate body, or frankly accept the whole responsibility from the beginning of pregnancy to the complete convalescence of the mother and the proved well-being of the infant. Professor McIlroy's suggestion of appointing expert obstetricians (if need be to act under the medical officer of health), who would undertake personally to supervise the ante-natal stage, attend at the labour if necessary, and pilot the patient to complete convalescence, is the only rational solution if the medical officer of health is to retain any interest in this work. The medical officer of health *cannot* be expected to be an expert obstetrician in addition to his other already multitudinous duties, but the obstetric officer appointed could be responsible to him. Maternity welfare would then be a continuous and consistent pursuit, and the promise already held out by ante-natal care would yield its fullest and richest fruit.—I am, etc.,

W. OSBORNE GREENWOOD, M.D., B.S., F.R.S.Edin.

Harrogate, Oct. 10th.

SIR,—Generally speaking, I do not believe that there is nowadays much of the unskilful or impatient midwifery practised which is condemned in Dr. Louise McIlroy's letter of October 4th (p. 642). In all the larger towns, and in many of the smaller ones, I think it is recognized that anything really difficult in midwifery is best sent into a hospital, and that this occurs, except where manipulative or operative manœuvres are of the simplest. In the country, of course, removal might be impossible; but here again I do not see how an arrangement could be made workable for a doctor of specialist standing to attend wherever required.

I also fail to see why a doctor called in by the midwife should be required to furnish a detailed report of his treatment to anybody. In an age when we are inundated with official forms and regulations do not let us be required to add to this still another, which in most cases would be perfectly useless.

As regards criticism by the medical officer of health (excellent fellow as he usually is), why should he criticize when he has no special qualification to do so, and has, in fact, usually less knowledge of midwifery than his colleagues? Either he must add a special study of midwifery to his already extensive curriculum, or else the job must be taken out of his hands altogether.

With regard to Dr. McIlroy's numbered suggestions I would say:

1. More medical inspectors would be needed than would be economically possible, and more lives would be lost by delay in urgent cases than would be saved otherwise. Is it natural for the poor general practitioner to be satisfied to be called in only if someone else cannot be procured in time?

2. Is the mother to be dragooned by these whole-time officers, or has she to have a say in the arrangement of her own confinement?

3. The same applies here. If a woman requires help she should have the option of pleasing herself who is called in. She usually forms a good idea during the years who is able to deal satisfactorily with difficulties in labour. Again, who will decide who is a reliable obstetrician? Shall he be academically brilliant, or will it be necessary for us all to submit to a practical examination?

4. In most cases we have this ready help in the hospitals.

I think all will agree that, except in rare cases, the home is no place for expert and dangerous manœuvres to be undertaken at all, and that these cases are best rushed off to hospital. Where the case is very urgent one naturally could not get the specialist help of whole-time officers, so that we are left only with those cases which are found in rural districts with hospitals far away, and specialists far away also.

My plea would be, not for a host of new officials; we have too many already, and the financial burden is too great in these hard times. The solution is, in my opinion, much simpler and less costly, and that is, a greater appreciation of the maternity hospitals already existent and a more rapid

and methodical means of transport thereto. I think the much maligned general practitioner is not so black as he is painted, nor are his failures so great as we are given to suppose.—I am, etc.,

Hyde, Cheshire, Oct. 7th. J. G. Bennett, *M.C.*, M.D.

CELLULOSE ACETATE.

Sir,—I am interested in the letters which appeared in your issue of October 4th relating to my "case of poisoning by cellulose acetate." By way of reply I will give some details which will make matters quite clear as to how the cellulose acetate solution came to be used for the making of the encasing splint.

In the *Lancet* of June 14th Dr. Fernandez published a communication entitled "The use of non-inflammable cellulose splints," and proceeded to say, "Cellulose acetate was suggested to me by the employment of cellulose dopes or varnish for aeroplane fabrics." He used "two solutions: Solution 26, which is thicker and more viscous, and the thinner Solution 25 for the additional coating." Then followed the technique to be employed.

In ordering these solutions Dr. Fernandez's article was drawn attention to, and a quotation asked for his Nos. 25 and 26 solutions. The reply stated: "We beg leave to quote you for cellulose acetate solutions Nos. 25 and 26"; and they were supplied in due course. There is therefore no doubt that the preparations used were as advised by Dr. Fernandez.

The results were recorded by me in your issue of September 13th. We afterwards examined the bulk of the solutions which still remain in the tins. The atmosphere of the room felt close, and we appreciated the presence of a heavy odour. On smelling the liquid for a few minutes we were conscious of inhaling a rather sickly vapour, which did not invite a continued inhalation.

Acetone was clearly present, as proved at the patient's bedside. If tetrachlorethane were not present, then it is obvious that an enhanced gravamen against the "solution of cellulose acetate" exists.

I have, of course, no animus against this preparation in any way; but after the anxious experience we went through, when the issue of the child's life was in the balance, both my colleague and myself felt that it was only right and fair that the case should be recorded; and there the matter rests, so far as I am concerned.

I may add that the patient was no weakling, but a bonny, plump little girl living an open-air life, and now again actively getting about on crutches with almost fully restored movements in a slightly tuberculous knee.—I am, etc.,

Sheffield, Oct. 8th. Godfrey Carter.

X-RAY EXAMINATION IN RELATION TO PULMONARY TUBERCULOSIS.

Sir,—It was heart-breaking to read the article in your issue of October 4th (p. 615) entitled "*X*-Ray examination in relation to some aspects of pulmonary tuberculosis," by Dr. J. H. Mather. He writes:

"Reference to some of the cases detailed below make it clear at once that an *x*-ray examination may be of such supreme value that a radiologist's report should be obtained wherever there is a shadow of doubt as to the presence of tubercle. I shall endeavour to prove that this is essential in cases where the evidence gleaned from the physical examination of the chest is not sufficient to account for the symptoms."

Again:

"Now in the three cases above quoted there was no evidence to suggest the presence of emphysema, and certainly the lesions were not small in extent; we must therefore look for some other cause to account for the failure to detect these cases clinically. I would suggest that this failure to diagnose cases of symmetrical disease is due to the lack of a basis for comparison between the two lungs."

The writer is generous. I suggest, Sir, that the failure was due to ignorance and to a lack of appreciation of the very elements and first essentials in the diagnosis of phthisis. The very first things to do are those which in the quoted cases were apparently not done—namely, to look for tubercle bacilli, toxaemia, and raised temperature. These are the important things, not physical signs. There may be severe active disease with no physical signs, and conversely all the physical signs of pulmonary tuberculosis may be caused by a non-tuberculous lesion.

In the cases quoted tubercle bacilli were found in the sputum after the *x*-ray report had been made, and in several cases the unfortunate patients died within a few weeks.

In Case I the symptoms were marked loss of weight, slight cough and expectoration, later emaciation; the diagnosis suggested was duodenal ulcer. In Case II the symptoms were shortness of breath following influenza, husky voice, loss of weight, slight cough and expectoration; the diagnosis was aneurysm, new growth, or tuberculosis. In Case III the symptoms were cough, expectoration, pain in chest, and shortness of breath; the diagnosis was gastritis.

It is inconceivable how it came about that the true diagnosis was missed. Such dreadful errors will be prevented, not by radiography, but by a general knowledge and acceptance of the truth that phthisis is to be diagnosed, *not* by physical signs, but by tubercle bacilli, toxaemia, and evening rise of temperature.

That there were no abnormal physical signs in the cases of gross tuberculosis quoted in this article I cannot believe, but that is another question. Frequently in moribund consumptives the chest appears quite resonant, especially to hard percussion. In such a stage, however, it does not matter so much if the diagnosis is missed, except that no precautions against the spread of infection are taken; but in early cases of pulmonary tuberculosis, if the profession is going to continue to place reliance on physical signs as a means of diagnosis, countless tragedies will continue to happen.—I am, etc.,

London, W., Oct. 12th. F. G. Chandler.

MEDICAL OFFICERS AND CONSULTING FEES.

Sir,—I note that "Tuberculosis Officer" says (October 4th, p. 646) he will still continue to take private fees; but in so doing he is acting in direct contradiction to the resolution of the Representative Body at the Bradford Meeting. Such actions are undesirable in the best interests of the profession as a whole. Unity and loyalty is the only means of strength in an Association such as ours.—I am, etc.,

Chichester, Oct. 4th. Arthur M. Barford.

Sir,—To my mind one of the chief advantages of a whole-time appointment is freedom from the distraction of wondering whether a fee should be expected or not. I have had ten years' experience of general practice and twelve years of tuberculosis work, and I am convinced that it is better for a whole-time official to be paid an adequate salary rather than receive a smaller salary and be expected to supplement it by securing fees when and where he sees the opportunity. Being able to advise and assist free of expense to one's patients is a constant source of real pleasure and satisfaction. Why should tuberculosis officers give this up?

The whole-time official cannot expect to receive the same income as a successful general practitioner, but, on the other hand, he is free from the worry of collecting his fees and having to get money out of sick people who can hardly afford to pay him. I think tuberculosis officers should stick to the substance and leave the shadow alone.—I am, etc.,

Folkestone, Oct. 6th. T. M. Pearce.

ASSISTANTS IN GENERAL PRACTICE.

Sir,—I was pleased to read "Ex-Assistant's" letter in the Journal of October 11th (p. 690), and I write to express agreement. He mentioned £350 per annum as the average remuneration offered to assistants. This, I think, is above the figure offered by most practitioners.

Surely £250 per annum is quite an inadequate salary for an indoor assistant, and yet it is offered, even in your advertisement columns, by those practitioners who are taking advantage of the present "glut on the market."

I note that the British Medical Association refuses all advertisements of Public Health appointments which do not offer a certain minimum salary. Could assistantships not be brought under a somewhat similar supervision, and advertisements be only accepted with the proviso that a minimum salary of, say, £300 must be offered for an indoor assistant?—I am, etc.,

October 11th. H. W. B.

SIR,—A general practitioner of some standing recently offered a medical woman, for an indoor assistantship with no exceptional advantages, a salary no more than one-seventh of that quoted by your correspondent (£350). On further inquiry, he stated that he required a woman assistant, as he knew he could not get a man so cheaply.

Medical women have no desire to undercut their professional brethren. Cannot something be done to prevent the offer of these preposterous salaries?—I am, etc.,

October 13th. MEDICAL WOMAN.

THE HOURS OF MEDICAL WORK.

SIR,—I must press doctors to follow Dr. Maclachlan's advice (p. 542), and will state my experience, etc. For nearly twenty-five years I have stated my hours, x to y, impressed upon patients the need to be present at x. If they crowd the place out near y, closing time, I refuse to examine them and make them come next x, when I have time; y means closing at that time, and no worker will start a new job at five minutes to his closing time. The patient who comes in at the finish, wishing to catch me when I am quiet, I remind that I have quite finished, and that he will find a quiet time during the next x to y hours; also that he has missed the quiet times I had to spare. Accidents and emergencies excepted, I carry this out very strictly. If my hours do not suit them they can go to another doctor, I tell them, but it is surprising how often they see the reasonableness of it. I remind them, too, that visits after 8 p.m., *light or dark*, are night visits, and must really be necessary, as it does not pay to keep an assistant for such visits. I must confess that I have had more difficulty since daylight saving, as people do not realize that I start just as early as ever. Special cases for examination I will arrange for before x, but not after y. After y I have cases to read up, correspondence, next day's work to arrange.—I am, etc.,

September 21st. MEDICUS.

CARBON MONOXIDE POISONING.

SIR,—Dr. R. Cunningham Affleck (October 11th, p. 690) has not brought forward any evidence which proves that his patients suffered from carbon monoxide poisoning. They might have been, and probably were, suffering from confinement in heated, stagnant air at head level, with cold floor. The fact that he attributes to carbon monoxide poisoning the sudden sensation of an iron band being tightened round his forehead, felt on entering a bedroom warmed by a coke stove, shows that he is unaware of the fact that carbon monoxide only poisons by deprivation of oxygen, and that it takes time to saturate the blood up to the partial pressure of the gas present in the room. The iron-band feeling can only have been caused by the effect of the heated air containing sulphur acids, and possibly other irritant fumes, on the mucous membrane of the nasal air sinuses.

Mr. T. Angus and I have recently made some observations on mice exposed to the fumes of flueless gas stoves in a small room with door and window closed, which show that natural ventilation, due to difference of temperature inside and outside the room, taking place through chink and cranny, is sufficient to prevent any appreciable formation of carbon monoxide in the blood. At the same time we found that the heated air at head level was objectionable, and therefore ample ventilation by open window is required when such a stove is used.—I am, etc.,

Loughton, Oct. 14th. LEONARD HILL.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Dissolution of Parliament.

PARLIAMENT was prorogued and dissolved on October 9th, after a Government defeat on October 8th. The general election is fixed for October 29th. The Ministry continues in office, but all bills introduced this year to which the Royal assent had not been given by October 9th are dead. The Therapeutic Substances Bill had been dropped previously.

Vaccination.—On October 8th the Minister of Health, Mr. Wheatley, answering Mr. E. Simon, said he would not reconsider his action in rescinding the Vaccination Order of 1923. He declined to admit that he was acting contrary to the advice of the chief medical officer of the Ministry of Health.

Lunacy Act.—In answer to Mr. R. Richardson, Mr. Wheatley said, on October 8th, that in the opinion of the Board of Control there were serious objections to the posting of Section 79 of the Lunacy Act in the waiting rooms of public asylums. The revised rules of the Commissioners of the Board of Control, which were now awaiting statutory approval, provided that on the admission of every pauper lunatic to an institution a notice should be sent to all persons whose names had been particularized as those of relatives or friends. In such notice the substance of Section 79 should be incorporated. He was not aware of any case during 1923 in which a private mental patient, who had not been seen by a magistrate, had been deprived of the subsequent notice of right of appeal to a magistrate, through the negligence of the managers of the institution in which he was received. Mr. Wheatley added that he was not aware of any instances during the last ten years in which a penalty for detention of a sane patient had been enforced. He could not, he said in answer to a further question, undertake to introduce legislation for the alteration of the grant of 4s. a head to boards of guardians for the maintenance of pauper lunatics.

Silicosis.—On October 8th the Home Secretary said he hoped to arrange for the commencement at an early date of an inquiry involving the medical examination of a number of workers in the pottery industry. Such an inquiry was required before a scheme under the Workmen's Compensation (Silicosis) Acts could be drawn up for potter's asthma.

Tuberculosis (Ex-Service Men).—On October 9th Mr. Roberts, Minister of Pensions, in answer to Commander Fletcher, said he was advised that it would not be in the best interests of ex-service men suffering from tuberculosis as a result of their war service to make final awards for pension on any general scale. It was his intention to secure awards for prolonged periods in all possible cases. He had considered the matter with his medical advisers.

Universities and Colleges.

UNIVERSITY OF OXFORD.

CONGREGATIONS will be held for the purpose of granting graces and conferring degrees in Michaelmas term on the following days at 2.30 p.m.: Saturday, November 15th; Thursday, November 27th; Wednesday, December 17th.

UNIVERSITY OF CAMBRIDGE.

THE following candidates have been approved at the examinations indicated:

D.P.H. (*both parts*).—S. F. Allison, C. C. P. Anning, Constance E. Appleton, W. H. I. Bathurst, G. R. H. Chell, *R. P. Cormack, Isabelle A. Deans, Alice M. S. Dewar, H. S. Griffith, T. W. Hill, *O. R. Horwood, L. J. Kahawita, H. J. R. Kirkpatrick, *F. McKibbin, G. Meadows, Margaret J. Rennett, Emily V. Saunders-Jacobs, J. Scott, R. Sen, R. S. Taylor, Ann W. Turnbull, J. Wyllie.

DIPLOMA IN HYGIENE (*both parts*).—†‡R. H. Bestawros, A. Foad, M. Abdel-Hamid Gohar, A. Y. Mankarius, †A. S. Mohammed, *M. Nazif, I. Yousry.

* Distinguished in the application of Sanitary Science.
† Distinguished in the Principles of Hygiene.
‡ Distinguished in Bacteriology.

UNIVERSITY OF LONDON.

DEPARTMENTAL COMMITTEE ON UNIVERSITY COMMISSIONS REPORT.

The President of the Board of Education has appointed the following to be a Departmental Committee to consider the final report of the Royal Commission on University Education in London, dated March 27th, 1913, and having regard to present circumstances and after consultation with the persons and bodies concerned, to indicate what are the principal changes now most needed in the existing constitution of the University of London, and on what basis a Statutory Commission should be set up to frame new statutes for the University: Lord Ernle (chairman), Sir Robert Blair, Mr. H. L. Eason, C.B., C.M.G. (Medical Superintendent of Guy's Hospital), Mr. H. B. Lees-Smith, Sir Henry Miers, F.R.S., Professor A. F. Pollard, Sir Amherst Selby-Bigge, Bt., K.C.B., Miss K. Wallas, and Mr. S. H. Wood, as secretary, to whom all communications should be addressed at the Office of the Board of Education, King Charles Street, Whitehall, S.W.1.

At an extraordinary meeting of the Senate held on October 9th, when the Vice-Chancellor, Professor E. A. Gardner, Litt.D., was in the chair, a communication was considered, dated September 15th, 1924, from the President of the Board of Education with reference to the appointment of a Departmental Committee on matters connected with the University, the following resolution was unanimously carried:

That the President of the Board of Education be respectfully reminded that the Senate was not consulted as to the reference to the Haldane Commission, nor represented upon it, nor gave evidence before it; and that, having regard to the successful progress of the University since the report of that Commission, the Senate is of opinion that such changes in the organization of the University as are necessary may be more readily effected by amendments promoted by the University than by a statutory revision of the University as constituted by the Act of 1898; but that the Senate will be prepared to

furnish through its officers and appropriate committees any information desired by the Departmental Committee, and trusts that the various bodies and interests represented on the Senate will receive a full opportunity of putting individually or collectively before the Departmental Committee their views on the matters under consideration.

UNIVERSITY OF SHEFFIELD.

Dr. R. Platt and Dr. C. W. A. Lister have been appointed Demonstrators in Physiology.

UNIVERSITY OF GLASGOW.

The following candidates have been approved at the examination indicated:

Final M.B., Ch.B.—J. A. Adie, A. D. P. Alexander, J. L. Allan, Ruth M. Allinson, Christina M. Anderson, J. A. Barrie, Jessie L. Barrie, J. B. Bennett, J. Boyd, W. Brackenridge, F. H. Brisby, J. B. P. Brown, J. Buchanan, J. A. Buchanan, J. Byers, R. S. Caldwell, A. W. Cameron, D. E. Cameron, D. H. Campbell, P. Campbell, Margaret E. Chalmers, J. H. Chisholm, G. Christie, J. C. Clark, Ellen M. Clow, G. A. Cormack, Annie T. Crookes, J. T. Curran, W. Cuthbertson, J. J. B. Dias, R. Dick, A. T. B. Dickson, Enid M. Dixon, Margaret C. Douglas, R. Drummond, J. M. Duff, Annie K. Easson, R. C. Fergus, J. E. Fisher, J. Flind, R. D. Forrest, T. E. Gilchrist, W. Glasgow, Mary S. Glen, R. M'I. Gordon, G. G. Graham, T. F. Greenhill, G. R. Gribben, James Hamilton, John Hamilton, Isabella M'D. Harkness, A. C. Holms, Esther S. Hood, Jean F. Howie, A. B. H. Irvine, Helena J. S. Irving, W. C. Jack, *Elinor D. Jackson, J. Johnston, J. Kyle, R. L. Leask, D. M'E. Leroux, Beryl P. Lye, †G. M'Callum, Elizabeth L. M'Corquodale, D. A. M'Cowan, R. M'Cracken, T. M'Culloch, R. K. M'Dougall, H. A. G. MacEwan, M. MacEwan, Josephine M. Macfarlane, J. Macfie, W. J. M'Intosh, C. W. F. MacKay, I. A. Mackay, J. Mackay, W. Mackay (Carlton), W. Mackay (Kelvin), A. R. M'Kelvie, W. MacKenzie, M. Maclean, N. M'Lean, A. J. MacLeod, C. B. MacLeod, G. G. Macphee, J. M'Whirter, Elizabeth M. S. Meek, G. Millar, H. V. R. Miller, J. C. D. Mitchell, P. J. Molloy, J. A. Montgomery, E. J. Morgan, R. R. Morrison, C. D. F. Morton, R. Morton, W. D. Muir, W. P. Muir, Margaret K. Murray, J. Myles, S. Newman, A. Nicolson, A. Ogg, T. Pan, W. Parker, J. Petrie, A. M. Pollock, A. D. M. Pyle, J. Pyle, J. A. C. Randall, Dorothy E. D. Rankin, Mary A. Rigby, P. M. Ritchie, Edith M. Roberts, G. M. Robertson, H. C. Robertson, Helen L. Robertson, A. B. F. Rodger, A. R. Rooke, A. Rose, W. Russell, P. M'G. Shepherd, T. R. Sinclair, L. F. Skinnider, Isobel U. Sloan, G. J. Smith, J. K. S. Smith, Mary C. Stevenson, Mary S. Stevenson, P. H. Stewart, J. M. Stirling, Annie R. Stuart, I. R. Taylor, Barbara S. Tulloch, E. A. Underwood, G. W. Vaughan, J. G. Warnock, J. Waters, Elizabeth M. P. Weir, J. A. Wilson, Frances D. Young, A. Dunlop, J. Ferguson, J. N. Hamilton, J. A. L. V. Jones, M. M. M'Cleland, D. M'Farlane, A. C. Douglas, Margaret S. Ford, L. G. Scoular, I. F. Somerville, H. M. Weir.

* Distinction in Medicine. † Distinction in Surgery.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A quarterly council meeting was held on October 9th, when the President, Sir John Bland-Sutton, was in the chair.

Annual Report.

The annual report to be presented to the Fellows and Members at the annual meeting on Thursday, November 20th, was approved and adopted. It contains a record of the work of the College in its various departments from August 1st, 1923, to July 31st, 1924. In addition to an account of the annual meeting in November, 1923, and a note of the lectures and awards during the year, the report contains a detailed statement of the work of reorganizing the museum, under the supervision of Professor Shattock until his death. The work in connexion with the army medical collection has made good progress, and the specimens, numbering nearly 2,500, are being arranged in groups illustrative of different conditions. The teratological collection has been rearranged and extended during the year, and the new descriptive catalogue of the collection of surgical instruments in the museum has been completed by the addition of a final volume devoted to the series of instruments in use among barbarians and semi-civilized nations. The department of osteology has received important additions during the year by gifts of great value of human remains from the excavations at Scarborough, Chester, and elsewhere. The financial part of the report shows that the gross income of the College, exclusive of income from the trust funds, amounts to £46,211, being £3,244 more than in the previous year. The gross receipts from the Conjoint Examination Board are £4,360 higher, mainly due to an increase in the examination and diploma fees for the Membership. The total expenditure in respect of revenue amounts to £37,747, and is £343 less than the expenditure of the previous year. The balance on the revenue is £8,464, a larger sum than has been realized in any previous year. In the coming year it is proposed to carry out considerable repairs and alterations in the College buildings at an estimated cost of not less than £2,500. During the period under review 750 diplomas of Membership were issued (including 122 to women), and 50 persons (including 3 women) were admitted to the Fellowship; the licence in dental surgery was granted to 266 persons, including 12 women.

Jenks Scholarship.

Mr. Anthony Richard Charles Higham, formerly a student at Epsom College, was nominated as the thirty-second Jenks Scholar.

Gilbert Blane Medal.

A "Sir Gilbert Blane" medal has been awarded to Surgeon Lieutenant Commander Harold Boultbee Padwick, D.S.O., B.A. Promotion Examination, 1924.

Lectures.

The Bradshaw Lecture on "Some Clinical Aspects of Carcinoma of the Breast" will be delivered by Mr. Raymond Johnson on Thursday, November 6th, at 5 o'clock, and the Thomas Vicary Lecture on "Sir Richard Owen as Conservator" will be delivered by Sir Arthur Keith on Wednesday, November 12th, at 5 o'clock.

Obituary.

FREDERICK DEIGHTON, M.A., M.B.Cantab.,

Consulting Surgeon, Addenbrooke's Hospital, Cambridge.

Mr. Frederick Deighton, consulting surgeon to Addenbrooke's Hospital, died at his residence in Cambridge on September 29th, at the age of 70. He held a high position in the university town, both as an able surgeon and as a much esteemed townsman. He was born in Cambridge, where his father was in practice as a surgeon, and, save for his student years at hospital, spent the whole of his life in the town. Yet of few men can it be said more accurately that there was no provincialism or stagnation in his work. He constantly sought out the new and brought it into line with his practice.

Educated privately, he went to St. Peter's College, Cambridge, where he began as a mathematician, but later took up natural science, in which he took his degree. From Cambridge he went to St. George's Hospital. It was whilst holding the post of assistant surgical registrar that he was called back to Cambridge to take over his father's practice owing to his sudden death in an accident. This was in 1883, when he had taken the M.R.C.S.Eng. Compelled by circumstances to abandon all idea of work in London, Mr. Deighton made up his mind to succeed in his native town. With the responsibilities of practice on his shoulders he gave time to work at Addenbrooke's Hospital, and worked for and took the M.A. and M.B. at Cambridge University. His ability and industry were recognized when, in 1891, at the first vacancy, he was appointed assistant surgeon at Addenbrooke's. This began a long association with the hospital, covering a period of twenty-six years and only ending on his retirement in 1919. During this time his versatility was shown in the special work he did in addition to that of general surgeon. For several years he had the aural and gynaecological departments in his charge, both of which owed their inception to him. With these departments he kept abreast of the times, frequently going away to see the work of other men and the best and most modern ways of treating disease. Yet, at the same time, he was a very deliberate thinker, not to be easily moved, and only taking on new methods where his own experience confirmed that of others. In operating there was no show or brilliancy, but meticulous care and delicate manipulation, so that haemorrhage and shock were reduced to a minimum. One of his house-surgeons, talking gratefully of his former chief, ten years after leaving Addenbrooke's, stated that, in his experience, he had never met a better operator for thyroidectomy. This man's experience had been wide and varied, and included reading for the F.R.C.S.Eng. It was a great tribute, but thoroughly deserved.

Mr. Deighton's knowledge of surgery and his judgement were equally good. He could trace the evolution of an operation and explain its virtues and its drawbacks, and could give a wide, comprehensive view of surgery which was invaluable to those brought in contact with him. Again, there was no improvement in aseptic technique that he did not master and assimilate, and right up to his retirement from hospital he was as much up to date as the youngest of his colleagues. But his most careful work as a surgeon was combined with a kindliness and cheeriness of disposition, a thorough friendliness of manner, which made him friends with all who worked with him. Though he could speak plainly and to the point where the welfare of his patients required it, he was absolutely devoid of any sternness or severity, and increasing acquaintance added to the respect and regard one had for him. He was devoid of all pretentiousness, and honest and sincere in his outlook on everything.

During the war he was lieutenant-colonel in the R.A.M.C.(T.), serving at the 1st Eastern General Hospital, and for some two years he was also surgeon to the Officers' (Research) Hospital. Two of his sons lost their lives in the war, one of them belonging to his father's profession.

Mr. Deighton was president of the Cambridge Medical Society for the years 1902 and 1903, and his main contributions were to that society. He was also ex-president

of the Cambridge and Huntingdon Branch of the British Medical Association. His advice on all matters affecting the profession was listened to with interest as being a well balanced and sound opinion, and time showed that his outlook on medical politics was worth seeking. When at Peterhouse he played cricket for his college, and in his early days of practice, when limited time meant intensive play, he took up real tennis. In the nineties he became an expert chess player, twice playing for the South against the North. At the age of 55 he took to golf, and his keenness and natural skill are evidenced by his handicap being down to six at the age of 60. He retained his keenness in the game until the end, and even when bedridden was intensely interested to hear of the results of other people's play.

He leaves a widow (daughter of the late Mr. Francis Fisher, Crown Solicitor, Sydney, N.S.W.), three daughters, and two sons, one of whom is in the medical profession.

W. H. B.

Medical News.

A SERIES of museum demonstrations on anatomy and malformation of the heart will be given in the theatre of the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., by Sir Arthur Keith, F.R.S., on Fridays, October 17th, 24th, and 31st, at 5 p.m. The first demonstration will deal with specimens illustrating the evolution of the human heart, the second on common kinds of congenital malformation, and the third on applied anatomy of the heart.

ACCORDING to recent statistics, the total French losses in the war amounted to 1,325,000 dead and missing. Of these 574,700 were killed in battle, 250,000 died of wounds, 175,000 of diseases, and 225,000 were missing; 9,287,822 were admitted to hospital, of whom 3,594,889 were wounded and 4,988,213 were suffering from various diseases. The proportion of killed and wounded was 1 in 4. About one-fifth of the wounded had more than one wound. After 1916 about 80 per cent. of the wounded could be sent back to the front.

THE next meetings of the Royal Commission on Lunacy and Mental Disorder will be held at the Royal Commissions House, 5, Old Palace Yard, on Tuesday and Wednesday, October 21st and 22nd, beginning at 10.30 a.m. each day.

OWING to the recent builders' strike the consecration of the memorial chapel of Epsom College has been postponed from November 1st to Saturday, February 21st, 1925. The ceremony will be conducted by the Bishop of Winchester.

THE fourth of the series of post-graduate lectures on cancer will be given by Sir StClair Thomson on "Cancer of the larynx" on October 20th, in the West Lecture Hall of the Royal Society of Medicine at 5.30 p.m. At St. Peter's Hospital a four weeks' special course in urology will begin on October 20th. A fortnight's intensive course in cardiology at the National Hospital for Diseases of the Heart commences also on October 20th. The Hampstead General Hospital has arranged a two weeks' intensive course, embracing all the general and special departments of medicine and surgery, from October 27th to November 7th. The following hospitals will participate in a combined course on children's diseases from October 27th to November 15th: Paddington Green Children's Hospital, the Victoria Hospital for Children, and the Children's Clinic. Courses in November are as follows: dermatology, at St. John's Hospital for Diseases of the Skin; gynaecology, at the Chelsea Hospital for Women; proctology, at St. Mark's Hospital; venereal disease, at the London Lock Hospital; and a general course in medicine, surgery, and gynaecology, at the Royal Waterloo Hospital. The syllabus of each of these courses can be had from the Secretary of the Fellowship of Medicine at 1, Wimpole Street, W.1.

THE opening lecture of the winter session at the North-East London Post-Graduate College will be given on Tuesday, October 21st, at 4.30 p.m., by Colonel L. W. Harrison, on the diagnosis and treatment of gonorrhoea in the male. The lecture will be illustrated by a cinematograph film and will be open to any medical practitioners who care to attend. An opportunity will be afforded from 3.30 to 4.30 p.m. for a visit of inspection of the new wards, theatre, and other recent extensions of the hospital. Those wishing to attend are asked to intimate their intention to the Dean at the Prince of Wales's General Hospital, Tottenham, N.15, so that tea may be provided for them.

THE Royal Society of Tropical Medicine and Hygiene will hold the opening meeting of the new session on Thursday, October 23rd, at 11, Chandos Street, Cavendish Square. After a demonstration at 7.45 p.m. on some malaria-carrying mosquitos and their larvae, the President, Surgeon Rear-Admiral Sir Percy Bassett-Smith, K.C.B., will take the chair, and a paper will be read by Sir Malcolm Watson, M.D., of the Malay States, entitled "Observations on malaria control, with special reference to the Assam Tea Gardens," illustrated by lantern slides.

THE next meeting of the Biochemical Society will be held at Cambridge on Saturday, October 25th. The society exists to facilitate intercourse between those biologists and chemists who are interested in the investigation of problems common to both, including animal and vegetable physiology and pathology, agriculture, and brewing. Members of the society are entitled to use the library of the Chemical Society, Burlington House, London, W.

THE annual dinner of the West Riding Association of the Graduates of the University of Edinburgh will be held on Wednesday, November 12th, at the Midland Hotel, Bradford, at 7.15 p.m. The annual general meeting will take place at 6.30. The guest of the evening will be Professor George M. Robertson, M.D., Professor of Psychiatry in the University of Edinburgh.

DR. HENRY JELLETT, late Master of the Rotunda Hospital, Dublin, has been appointed consulting obstetrician to the Health Department of New Zealand.

THE Home Secretary has issued an Order, which will come into force on January 1st, 1925, applying the provisions of Section 73 of the Factory and Workshop Act, 1901, to all cases of poisoning by carbon bisulphide, poisoning by aniline and its compounds, and chronic benzine poisoning, occurring in a factory or workshop. This section relates to the notification of certain diseases contracted in factories or workshops.

MR. TOM EASTHAM, K.C., M.B., has been appointed Recorder of Oldham.

A MEETING under the auspices of the National Council for Mental Hygiene will be held at the Liverpool Medical Institution, 114, Mount Pleasant, Liverpool, on Friday, October 24th, at 4.30 p.m. The speaker will be Sir Maurice Craig, M.D. All medical practitioners are cordially invited.

AT the meeting of the Tuberculosis Society to-day (Friday, October 17th), at 8 o'clock, at 1, Upper Montague Street, Russell Square, Dr. O'Donovan will make a communication on cutaneous tuberculosis. Members of the society are invited to the next meeting of the Society of Superintendents of Tuberculosis Institutions to be held at 122, Harley Street, W.1, at 3 p.m., on October 20th, when diet in cases of pulmonary tuberculosis and the duration of sanatorium treatment will be discussed.

AT the meeting of the Medico-Legal Society, to be held at 11, Chandos Street, Cavendish Square, W.1, on Tuesday, October 21st, at 8.30 p.m., Professor Harvey Littlejohn will present communications on (1) "Judicial hanging—a humane method of execution," and (2) "What is the fatal dose of strychnine?"—to be followed by a discussion.

THE sixth international medical post-graduate course was held in Carlsbad from September 7th to 13th. Professor Ascoli of Rome read a paper on chronic malaria, and Dr. Louis Fischer of New York dealt with rickets. Professor Chagas of Rio de Janeiro reported a special variety of trypanosomiasis in Brazil, and Professor Katsunuma of Japan discussed the cell function of the oxydase reaction. Other readers of papers were Professor Benedikt of Budapest, Professor Bergmark of Upsala, Professor Schur of Vienna, Professor Arnt de Besche of Christiania, and Professor L. Asher of Berne. The course attracted a large number of doctors from many countries.

THE forty-first exhibition of the Royal Institute of Oil Painters, now open at 195, Piccadilly, contains an excellent portrait by Mr. John St. Helier Lander, R.O.I., of the Treasurer of the British Medical Association, Mr. N. Bishop Harman, F.R.C.S., robed in the gown and hood of a Bachelor of Medicine of the University of Cambridge.

MR. BASIL GRAVES, curator of the Royal Westminster Ophthalmic Hospital, and formerly research scholar of the British Medical Association, has been appointed clinical lecturer and special instructor in charge of the department for microscopy of the living eye in the Department of Ophthalmology, Graduate School of Medicine, University of Pennsylvania, U.S.A., for a period of three months from January 1st, 1925.

SIR HENRY DUKE (President), in the Divorce Division of the High Court of Justice, on October 13th, said that the medical inspectors appointed by the court in nullity suits had resolved to give their services gratuitously in poor persons' cases, and by this self-denying resolution they brought themselves into line with members of the Bar and solicitors.

AT the September matriculation examination of the University of London 36 candidates passed in the first division and 343 in the second division; in addition 22 took the supplementary certificate in Latin.

Dr. A. J. Cronin of Tredegar, Mon., has been appointed a temporary medical inspector under the Coal Mines Act, 1911.

Dr. Jean Guisez of Paris has been invited by the University of London to give a lecture at the house of the Royal Society of Medicine, 1, Wimpole Street, W., on November 6th, at 5 p.m., on malignant disease of the oesophagus.

The Final Report of the Departmental Committee on the Use of Preservatives and Colouring Matters in Food has now been presented to the Minister of Health and will shortly be published. The terms of reference having been extended to include the treatment of flour with chemical substances, the Committee will now proceed to inquire into this question, and communications on the subject should be addressed to the secretary, Mr. A. M. Legge, of the Ministry of Health, Whitehall, S.W.1.

In connexion with the diamond jubilee of the Guild of St. Luke arrangements have been made for a luncheon to be held on October 18th at Pagani's Restaurant, 42, Great Portland Street, W. The Rev. Canon Arnott, F.R.C.S., the surviving founder of the Guild, is expected to be present. On Tuesday, October 21st, the musical portion of the festival service in St. Paul's Cathedral will be rendered by the combined choirs of St. Mary the Virgin, Primrose Hill, and the League of Artists, under the direction of Mr. Geoffrey Shaw. The November Chapter of the Guild will be held on November 13th, at 5 p.m., at King's College, Strand, when the Rev. T. H. Passmore will read a paper. The chapter on December 9th will be addressed by the Rev. E. P. Lewis, D.D.

At the closing session of the Ceylon Legislative Council on August 28th last, the Governor, Sir William Manning, said that the medical department of the colony had expanded very considerably during the last three years. In 1921 the expenditure was Rs.5,033,689; in 1924 it has been Rs.7,448,600. In 1921 the expenditure on medical research was Rs.600; to-day it is Rs.70,142. In this period 1,500,000 persons have been treated for ankylostomiasis. For the treatment of parangi, nine whole-time medical officers are employed—one in each province; ten new hospitals and thirty-three new dispensaries have been opened, and additions and improvements to forty hospitals have been made. A malariologist has been appointed, with a staff to assist him. Sanitation has been seriously taken up, and four medical officers of health and sixty-five sanitary inspectors appointed. For estate medical inspection six whole-time officers have been appointed. The department has shared in the general development which has taken place during the period 1921-24. According to the Governor, Ceylon is better supplied with hospitals and dispensaries than any other tropical colony.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* British Medical Journal *alone unless the contrary be stated.* Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Financial Secretary and Business Manager, 429, Strand, W.C.2, on receipt of proof.

The telephone number of the British Medical Association and British Medical Journal is Gerrard 2630 (Internal Exchange). The telegraphic addresses are:

EDITOR of the British Medical Journal, *Aitiology Westrand, London.*

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London.*

MEDICAL SECRETARY, *Mediocra Westrand, London.*

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone: 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone: 4361, Central).

QUERIES AND ANSWERS.

Spas of France.

We are asked to state that in consequence of the reference to the approaching publication of a volume entitled *The Spas of France* contained in the article "Some Vosges Spas," published in our issue of September 20th (p. 538), the Office Français de Tourisme (56, Haymarket, London, S.W.1) has received a large number of inquiries with regard to the book. The translation is, however, not yet ready, and it is not likely that the volume will be available before the beginning of next year.

Senile Craniotabes.

"Rosacea" asks how to treat craniotabes in an old lady of 84 years. The bone has thinned like an eggshell over one parietal bone. The patient takes plenty of food and green vegetable.

Discharge from the Nipple.

"X. Y." writes: A lady, aged about 55, has lately noticed a straw-coloured discharge from the nipple. There is nothing to be felt in the breast, but about four years ago there was removed from it by operation a growth which was pronounced to be inflammatory and non-malignant. What is the significance of this discharge? Does it denote early malignant change in the breast or nipple?

Obstinate Nasal Catarrh in an Infant.

"G. E." asks for suggestions for the treatment of obstinate nasal catarrh in an infant of 6 months. The child is otherwise perfectly well, and his parents are healthy. The condition developed when the child was a few weeks old: it has never been completely cured, and often becomes bad enough to interfere with sucking.

Income Tax.

Demand for Accounts.

"R. D. A." has been asked by the local inspector of taxes for his accounts for the three years ended December 31st, 1920, but cannot comply with the request as the practice was then carried on by a deputy, since dead. He asks whether he can deduct one-half of the annual value of his house as an expense of the practice.

*** The inspector of taxes has no legal right to require the production of accounts, but would be within his statutory functions in bringing any particular case to the notice of the Commissioners, who might make increased assessments and call for the accounts if they were appealed against by the person assessed. It is obviously more convenient for all parties that any reasonable request for accounts made by the inspector should be met and the matter settled with the person concerned without the formalities and inconveniences of an appeal. In this case "R. D. A." is in a real difficulty, and we suggest that he explain the matter to the inspector—preferably orally—and he will probably find that the matter is capable of amicable settlement. With regard to the annual value deduction, he can include in the expenses a reasonable proportion; one-half is, speaking generally, quite reasonable when the property includes surgery and garage.

Anticipatory Deduction.

"J. E. H. S." refers to a reply to his inquiry in our issue of October 4th (p. 650), and explains that the repayment in question was for 1923-24.

*** The action of the inspector is not so unreasonable as would appear from the note in our previous issue, but is still open to objection in principle. He cannot claim a set-off against money not yet legally due from our correspondent. We suggest that a protest be lodged and a supplementary repayment requested.

Work under the Ministry of Pensions.

"E. D. C." was engaged for some time on locumtenent work and sessional work for the Ministry of Pensions, but in recent years has confined his professional work to the latter. He asks if he can claim the three years' average.

*** The question resolves itself into this—are the earnings the profits of an employment? We have not before us full particulars of the contract of service with the M nistry, but we are of the opinion that in substance it is a contract of employment. If so, "E. D. C." cannot claim the average and is assessable on the earnings of the actual year. The arrangement under which such earnings are pooled with general practice earnings for one (average) assessment appears to be without legal justification, and to be based on a departmental concession to the convenience of the profession and, incidentally, its own officers.

LETTERS, NOTES, ETC.

Obstetrics and Local Health Authorities.

Dr. Agnes Hill Nicoll asks us to correct the wording of a passage in the last paragraph of her letter on this subject published in the Journal of October 11th, p. 688. The passage should read: "As regards nursing mothers, it will always be more natural and convenient for the mother of a young baby who attends a clinic with her baby to have supervision," etc.

Acute Epiphysitis.

Sir John O'Conor, K.B.E., M.D. (Buenos Aires), writes, with reference to the discussion on acute epiphysitis in the Surgical Section at the Annual Meeting at Bradford, to express the very strong view that radical operative treatment is necessary, and that in what is commonly known as acute epiphysitis the whole infected portion of the medullary canal should be laid wide open in an endeavour to obviate pyaemia.

Vacancies.

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *143*.